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HYDRAULIC STUDY OF SECONDARY STILLING BASINS

by

Taban Sowlati Hashjani

A Thesis

submitted to the Faculty of Graduate Studies and Research
through the Department of Civil and Environmental Engineering in Partial
Fulfilment of the Requirements for the Degree of
Master of Applied Science at the
University of Windsor

Windsor, Ontario, Canada

1996



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ABSTRACT

In dams with low tailwater levels, the hydraulic jump may not occur on the protected apron. This could result in a severe local scour on the downstream river bed which could endanger the safety of the dam. A traditional solution is to place crushed rock in the scour hole to prevent further scour; however, this method is not a permanent solution.

The focus of this research is to investigate the effect, on the scour profile, of installing a secondary stilling basin downstream of the primary basin. This results in a dual stilling basin. The primary stilling basin is the original inadequate basin while the secondary stilling basin provides for the additional energy dissipation required to prevent excessive scouring in the river bed.

In this research, the physical model of the Shand Dam was used as a case study. A 1:49 scale model of the Shand Dam was constructed in a 4.9 m long by 3.0 m wide by 0.8 m deep basin in the Hydraulic Engineering Laboratory (B03, Essex Hall) at the University of Windsor. Experimental work was carried out for various flows and end sill configurations in the secondary stilling basin. It was observed that within a few minutes a scour hole formed close to the structure; this is referred to as the short-term scour. A long-term scour formed farther from structure and increased by time. All the scour tests were conducted for half an hour to study short-term and long-term scour. Scour depths

were measured at 56 points. From the scour profiles the best end sill slope to get minimum scour far from the structure was determined.

Velocities were measured at selected locations at 0.2, 0.5 and 0.8 of the depth within the secondary stilling basin and above the end sill. Pressure values at different points on the secondary stilling basin were recorded with a data acquisition system. Spatial correlations in both longitudinal and lateral directions were determined in order to establish dynamic loading on the floor of the secondary basin.

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LIST OF SYMBOLS

B	Width of the structure
C	Chezy coefficient
C_1	Coefficient
C_2	Coefficient
D_{50}	Standard sieve diameter of a sediment particle for which 50 percent of the sediment is finer, by weight
D_{85}	Standard sieve diameter of a sediment particle for which 85 percent of the sediment is finer, by weight
D_{90}	Standard sieve diameter of a sediment particle for which 90 percent of the sediment is finer, by weight
D_{cul}	Culvert pipe diameter
D_g	Effective diameter of bed grain
\bar{D}	Average grain size
f	Frequency
f_c	Roughness function
F_{ra}	Froude number at the location of y_a
G	Gate opening height
g	Gravitational acceleration
H	Distance between Forebay level and tailwater level
H_1	Upstream water depth
L	Length of the apron
L_R	Length ratio

N	Parameter
n	Number of grains displaced per unit area of bed per unit time
p'	Time varying-component of pressure
P	Total pressure
\bar{p}	Average pressure
q	Discharge per unit length
r_0	Relative turbulence intensity (dimensionless)
R_E	Eulerian correlation coefficient
R_{*}	Grain Reynolds number
$S(f)$	Fourier transform function
S_p	Shape factor
S_s	Sediment specific gravity
t	Time since the scour started
T_R	Time ratio (prototype / model)
U_*	Shear velocity
U_A^*	Maximum instantaneous velocity near the bed
U_a	Average velocity of approach
V_{mc}	Critical mean velocity
V_R	Velocity ratio
V_s	Particle fall velocity
\bar{U}	Average velocity at the end of bottom protection
\bar{U}_c	Critical mean velocity evaluated from Shield's curve

$x(nt)$	Real discrete time signal
$x_p(nT)$	Periodic signal
y_s	Difference between tailwater level & secondary stilling basin floor elevation
y_a	Depth of water on the end sill
y_s	Depth of scour below original bed level
y_t	Tailwater depth
z_s	Difference between forebay elevation and secondary basin floor elevation
α	End sill slope
β	Angle of the bed slope
β'	Momentum correction factor
γ	Unit weight of water
ΔQ_R	Ratio of submerged specific weights
θ	Factor dependent on flow geometry
θ'	Kinetic energy correction factor
θ_c	Dimensionless shear stress
μ	Dynamic viscosity
ρ	Density of water
σ	Standard deviation of bed material particle sizes
τ_0	Hydrodynamic shear stress on the bed
τ_b	Critical shear for sediment particles on sloping bed
τ_c	Critical shear stress on the bed
ϕ	Angle of repose of the sediment particles

ω_s Sampling radian frequency

CHAPTER I

INTRODUCTION

1.1 General

From a practical viewpoint, the hydraulic jump is a useful means of dissipating excess energy in supercritical flow. It is usually confined partly or entirely to a channel reach that is known as the stilling basin. The bottom of the basin is paved to resist scouring. In practice, the stilling basin is seldom designed to confine the entire dissipation length of hydraulic jump on the paved apron, because such a basin would be too expensive.

1.2 Objective

The purpose of this model study is to investigate the flow and loading characteristics (pressure and velocity) on a secondary stilling basin, and to seek an optimum end sill slope that overall minimizes the bed scour and moves the location of maximum scour depth away from the structure. The Shand Dam model was used as a study case. This study originated from a safety concern that was identified in an on-going province wide review of existing dams; this project was supported by the Grand River Conservation Authority. Figures 1.1 and 1.2 show the photographs of the Shand dam.

1.3 Definition of the problem

One of the most severe local scour problems in dams is due to low tailwater. If the stilling basin is ineffective in reducing the kinetic energy and the hydraulic jump is

swept out of it, the result could endanger the structure. In the case of a swept out hydraulic the stilling basin performs like a flip bucket causing the exiting jet to follow a rising and then a plunging trajectory. The plunging jet has a high scouring potential as it attempts to create its own stilling pool.

A traditional solution to this problem is to place crushed rock in the scour hole to prevent further scour; for most cases this method has not proved to be a permanent solution. The present research studies the secondary stilling basin in dams in order to reduce the local scour due to low tailwater.

1.4 The Approach in General

The physical model of Shand Dam was used to investigate the effect of secondary stilling basin on bed scour of dams with low tailwater level. The model had been constructed in a 4.9 m long by 3.0 m wide by 0.8 m deep basin. During laboratory tests four different flows and eight end sill slope were used. Through 384 tests the following data sets have been collected:

- a) Velocity distribution,
- b) Pressure distribution,
- c) Scour profile downstream of the secondary stilling basin.

Pressures, at the 13 points, in the secondary stilling basin were measured by 20" LVDT pressure transducers. A special Pitot tube was used to measure the velocity in the secondary stilling basin and at the end sill. By the use of potentiometer, after each test

was finished, scour depths were recorded for 56 points downstream of the secondary basin. All the results including the scour profiles are presented in Chapter V. During the experimental study, scour depths were measured manually at three points. It was observed that the scour which formed close to the structure reached an equilibrium depth within a few minutes (short term scour) while the scour depth formed farther from the stilling basin continued to grow with time (long-term scour). The focus of this study is short-term and long-term scour.

The experimental studies revealed that a secondary stilling basin with a low transitional end sill produced very small scour and moreover the maximum scour depth was far from the structure and thus would not endanger the dam. This improvement was due to a secondary hydraulic jump within secondary stilling basin and the dissipation of its energy on the protected area. Figure 1.3 shows the model scour pattern produced by Hurricane Hazel flood at low transitional end sill.

The data were collected by a microcomputer, the Test Control Software (TCS) and the data acquisition system. They were analyzed with the aid of the a spreadsheet program. The results are also shown in Chapter V in dimensionless form for practical application purposes.

CHAPTER II

LITERATURE REVIEW

2.1 General

When a jet discharges through a sluice gate or over a spillway it exerts an appreciable boundary shear stress on the channel bed downstream of the structure. This shear stress normally exceeds the critical shear resistance for the existing bed material. In addition, when the jet expands over the bed it creates an adverse pressure gradient which develops a macroturbulence which disturbs the bed particles. Because of both the increased shear and the adverse pressure gradient, the capacity of the flow to entrain and transport sediment may become greater than the incoming sediment supply and cause a local scour to develop downstream of the apron.

2.2 Depth of Scour

Since scour in coarse sediment downstream of control structures develops very rapidly, only the equilibrium scour depth has been reported in most cases. Katoulas (1967) performed a rather extensive set of tests and found that about 64% of the scour occurred in the first 20 seconds, and about 97% of the scour depth was attained in just 2 hours. Figure 2.1 shows the various type of flow and the principle variables. The relevant variables are:

$$q = q_0 + q_u \text{ (m}^2 \text{ / s)}$$

$$q_0 = \text{flow over the weir or dam (m}^2 \text{ / s)}$$

$$q_u = \text{flow under the weir or gate (m}^2 \text{ / s)}$$

$$y_t = \text{downstream water depth (m)}$$

$$y_s = \text{depth of scour below original bed level (m)}$$

$$L = \text{length of fixed (protected) bed (m)}$$

H_i = distance between upstream water level and sill level

$$H = (H_i - y_o);$$

In tests with graded sediments, various observers reported segregation of the bed material in the scour hole. As a consequence, Hartung (1957) and Katoulas (1967) used D_{35} and D_{95} , respectively, to characterize the bed material. In scour prediction formulas, the grain size D is expressed in (mm) unless otherwise specified. Schoklitsch (1932, 1935) evaluated separately model tests for (a) over flow alone ($q_u = 0$ and $L = 0$). y_s , y_c , H and H_i are in (m); q is in (m^2/s).

$$y_s + y_c = 4.75 H^{0.2} q^{0.57} D_{90}^{0.32} \quad (2.1)$$

and for (b) underflow alone with a short horizontal sill ($L=1.5 H$),

$$y_s = 0.378 H_1^{0.5} q^{0.35} + 2.15 a \quad (2.2)$$

where a is the level of the downstream riverbed below the sill level. The effect of the grain size was negligible for the range $D = 1.5$ to 12 mm in the model tests; H_1 varied from 0.3 to 1.0 m. The tailwater depth was not varied independently. Veronese (1937) found for plunging jets

$$y_s + y_c = 3.68 H^{0.225} q^{0.54} \bar{D}^{-0.42} \quad (2.3)$$

for $\bar{D} = 9, 14, 21, 36$ mm and $q = 0.01 - 0.07 m^2 / s$

Shalash (1959) studied the influence of apron length L for underflow alone. The ranges for his tests were $q = 0.011 - 0.027 m^2 / s$ and $D_{50} = 0.7, 1.9$ and 2.65 mm. For an apron with a horizontal end sill:

$$y_s + y_t = 9.65 H^{0.5} Q^{0.6} D_{90}^{-0.4} (L_{min}/L)^{0.6} \quad (2.4)$$

in which L = length of apron and $L_{min} = 1.5 H$.

Li (1955) investigated scour below a submerged sluice gate and Ghetti and Zanovello (1954) did the same for a spillway. Both found the scour hole shape to be independent of flow velocity and bed material. Breusers (1966, 1967) reported systematic studies on two-dimensional scour. The impetus for these studies was reported by the Netherlands Delta Project where sluices and dams had to be built on loosely packed sediments. Observations on scour with various bed materials, flow velocities, and solution geometries showed that for a given geometry, similarity of scour hole shape was satisfied by the relationship (Figure 2.2).

$$\frac{y_s(x, t)}{y_t} = f\left(\frac{t}{t_1}\right) \quad (2.5)$$

where t_1 is the time at which $y_{max} = y_t$. Bed materials used were sand and bakelite ($\rho_s = 1350 \text{ kg/m}^3$) and polystyrene ($\rho_s = 1045 \text{ kg/m}^3$). The maximum scour depth as a function of time was:

$$\frac{y_{smax}}{y_t} = \left(\frac{t}{t_1}\right)^{0.38} \quad (2.6)$$

The characteristic time t_1 was expressed, on the basis of more than 250 tests, as:

$$t_c = 330 \Lambda^{1.7} y_c^2 (\theta \bar{U} - \bar{U}_c)^{-4.3} \quad (2.7)$$

in which:

t_c = time in hours at which $y_{\max} = y_c$

$\Lambda = (\rho_s - \rho_w) / \rho_w$

θ = factor dependent on flow geometry

\bar{U} = average velocity at end of bottom protection ($x=0$), (m / s)

\bar{U}_c = critical mean velocity evaluated from Shields' curve, (m / s)

The time for the prototype scour to develop can be estimated by the relationship proposed by Breusers (1967), that is

$$T_R = L_R^{2.05} \Delta Q_R^{1.6} V_R^{-4} \left(1 - \sqrt{\frac{\tau_c}{\tau_o}}\right)_R^{-4} \quad (2.8)$$

in which T_R = the time ratio (prototype/model); L_R = length ratio; ΔQ_R = ratio of submerged specific weights; V_R = velocity ratio; τ_c = critical shear stress of the bed material; τ_o = hydrodynamic shear stress on the bed. Assuming that $\tau_c / \tau_o \ll 1$ in both model and prototype and $\Delta Q_R = 1$, then if the model is operated as a Froude model, $T_R = 1$; the prototype scour profile would develop in approximately the same time as the model scour profile.

Farhoudi and Smith (1982, 1984) carried out an extensive study of scour below a spillway (Figure 2.3). The results were in general agreement with Breusers' work.

although the exponent in Eq. 2.6. differs, and were corrected by:

$$\frac{y_{smax}}{y_c} = \left(\frac{t}{t_c} \right)^{0.19} \quad (2.9)$$

where t_c was found to vary with $\Lambda^{1.4} (U_{max} - U_c)^{-3} y_c^{2.1}$ for a constant Froude number. Four sand sizes (0.15, 0.25, 0.52 and 0.82 mm), two bakelite sizes (0.25 and 0.52 mm) and three dam heights (0.1, 0.2 and 0.4 m) were employed. The length of the scour hole increased with a lower tailwater depth y_t .

Information on scour in cohesive soils is scarce. Kuti and Yen (1976) reported some tests on scour below a spillway for 6 spillways with varying percentages of fines < 60 μ m. The extent of scour decreased with an increasing percentage of fines and a decrease in the voids ratio.

McCorquodale and Mohamed (1992) found that the short-term scour depth is related to flow regime or type of hydraulic jump that dominates the flow in the scour hole. The experimental studies revealed that the flow during the filling of an empty channel has at least seven distinct regimes or phases (Figure 2.4), namely:

1. Jet attached to the bed;
2. Breaking wave and adverse hydraulic jump;
3. Unstable moving hydraulic jump on positive slope with a plunging jet;
4. Wave jump and diving jet;
5. Surface jet with entrainment from below (inverted jump);
6. Plunging hydraulic jump (B-jump);

7. Normal free hydraulic jump.

Bajestan and Albertson (1994) studied a model to predict the maximum local scour depth downstream of the St. Anthony Falls (SAF) stilling basin. The model was based on the stability analysis of a particle attacked by the hydrodynamic forces at the point of incipient motion and 15 sets of experimental tests. The experimental program consisted of three SAF stilling basin models and five different particle sizes. They presented that:

$$\frac{y_s}{D_{s0}} = 0.0158 \left(\frac{v_1}{\sqrt{g(S_s - 1)D_s}} \right)^{2.321} \left(\frac{y_1}{D_{s0}} \right)^{0.344} \quad (2.10)$$

in which y_s =scour depth; D_s = characteristic size of sediment; S_s = specific gravity; v_1 and y_1 are the flow velocity and depth at section 1 respectively.

Afify and Urroz (1994) performed a series of experiments in a sand-bed plunge pool with circular jets produced by nozzles at different angles and elevations and conveying different flow discharges. It was found that air entrainment tends to reduce the amount of scour due to increased dissipation of jet energy by the formation of air bubbles in the plunge pool. They also reported that the scour depth increases directly with jet velocity and, in general, inversely proportional to the tailwater depth.

Rajaratnam and Aderibigbe (1993) suggested a method for reducing scour below vertical gates. In the method, a screen was placed on the erodible bed immediately downstream of the gate. Experiments were carried out using three sand sizes and three

screens of different designs. They reported that the presence of screen appeared to divert the high velocities from the erodible bed, resulting in a significant reduction in scour. This method was considered cheaper, easier to install and to maintain and stable under uplift pressures compared to using a riprap or concrete apron.

2.3 Upstream Scour Slopes

The upstream scour slope determines the stability of the upstream part of the scour hole and the adjacent bed protection. The upstream scour slope reaches an equilibrium and is defined as the slope between $x = h_0/30$ and $x = (1/2) h_0$ (h_0 is the initial flow depth).

Based on a thorough investigation of scour downstream of an apron, Dietz (1969, 1973) reported that the upstream scour slope depends on a turbulence level, the form of the flow velocity profile, and a dimensionless parameter given by δ

$$\delta = \frac{(U_0 - U_c) D_*}{w} \quad (2.11)$$

which is related to the flow and sediment characteristics; w = fall velocity of the bed material; and $D_* = D_{50} (\Lambda g / \nu^2)^{1/3}$ = sedimentological diameter (dimensionless) and $\Lambda = (\rho_s / \rho_w) / \rho_w$. For nearly identical hydraulic structures, Dietz (1969, 1973) found a relation between the slope angle and δ . However, this relation may be ambiguous when the relative turbulence intensity is not constant, but varies because of different geometrical conditions.

As given by Breusers et al. (1977), many parameters that may influence the scour

phenomenon can be distinguished. Buchko et al. (1987) combined some of these parameters, resulting in

$$\cot\beta = f\left(\frac{D_{50}\sqrt{\Lambda g D_{50}}}{v}, \Lambda, \frac{D_{50}}{h_0}, \frac{U_0}{\sqrt{\Lambda g D_{50}}}\right) \quad (2.12)$$

where β is upstream scour slope (dimensionless). The idea was that each parameter could be independently varied from the others. Though the dimensionless parameters are important, the theoretical consideration can be questioned since the influence of the turbulence in the recirculation zone is not taken into account.

Based on the research activities of Dietz (1969, 1973) and Buchko et al. (1987) the slope angle was represented by De Graauw and Pilarczyk (1981)

$$\cot\beta = 5.5 \frac{w}{D_{50}} \left(\frac{v}{\Lambda^2 g^2}\right)^{1/3} \left(2.5 + \frac{0.75}{\alpha - 1.32}\right) \quad (2.13)$$

in which α = a factor depending on the flow velocity and turbulence intensity. For evacuation sluices and closure works typical values of α lie in the range of $2.5 < \alpha < 4$ for three dimensional situations. Later, after evaluating the enormous amount of data from the scour experiments, they found that for $\alpha > 1.5$ the upstream scour slope can be given by

$$\cot\beta = 2.3 + \frac{1}{\alpha - 1.3} \quad (2.14)$$

The values of α and β may be reduced by either lengthening the bed protection or making the bed rougher. The stability of the upstream scour slope is the result of the interaction between fluid motion and material properties. The equilibrium situation of upstream scour

slopes for noncohesive material is achieved by equating the mean bed load, due to the instantaneous bed shear stresses sloping downward, with the mean bed load, due to the instantaneous bed shear stresses sloping upward.

Hoffmans and Pilarczyk (1995) studied the functional design of the bed protection downstream of large hydraulic structure. Their studies showed a way to calculate the steepness of upstream slopes in the equilibrium phase of the scour process for noncohesive material. They found the best compromise between the measured and calculated angle of the slope, resulting in

$$\beta = \arcsin(2.9 \times 10^{-4} \frac{U_c^2}{\Lambda g D_{s0}} + (0.11 + 0.75 r_0) f_c) \quad (2.15)$$

where D_{s0} = mean particle diameter; r_0 = relative turbulence intensity (dimensionless) $0.2 < r_0 < 0.4$; $f_c = C / C_0$ = a roughness function that includes the displacement thickness (distribution of flow velocities near the bed); C = Chezy coefficient; $C_0 = 45 \text{ m}^{1/2}/\text{s}$. Bed materials used were sand, bakelite, and polystyrene. In laboratory experiments not only were the hydraulic conditions (discharge and initial flow depth) varied, but also the geometrical conditions (length of the bed protection, height of the sill, and the bed roughness).

2.4 **Bed Load Transport**

The initiation or threshold of movement of a particle due to the action of fluid flow is defined as the instant when the applied forces due to fluid drag and lift, causing the particle to move, exceed the stabilizing force due to gravity. For uniform sediments

in unidirectional flow this condition is best defined by the Shields curve, Figure 2.5, which defines the threshold in terms of the entrainment function

$$\theta_c = \frac{\tau_c}{\rho g \Lambda d} = \frac{u_*^2}{g \Lambda D} \quad (2.16)$$

which is a dimensionless shear stress, and the grain Reynolds number $Re_* = u_* D / \nu$ where $u_* = (\tau_0 / \rho)^{1/2}$ is the shear velocity, and τ_0 and τ_c are the bed shear stress and its critical value respectively, i.e. $\tau_0 = (\rho g y S)$ where y is the depth of flow and S is the slope.

Neill (1967) suggested that the average velocity be used instead of shear velocity in the analysis of the incipient of uniform bed material. The flow in his study was fully developed with uniform depth. He tested subcritical flow as well as supercritical flow; width to depth ratios had a minimum value of 5; different bed materials (size, shape and density) were used and the slope of flume was varied. He developed an equation to describe the critical mean velocity (V_{mc}) in the form

$$\frac{\rho V_{mc}^2}{(\gamma_s - \gamma) D_g} = 2.5 \left(\frac{D_g}{h} \right)^{-0.2} \quad (2.17)$$

in which h = depth of flow measured perpendicularly from the water surface; ρ = flow density, and D_g = effective diameter of bed grain. Straub (1953) presented an equation similar to Eq. 2.17 as

$$\frac{\rho V_{mc}^2}{(\gamma_s - \gamma) D_g} = 2.22 \left(\frac{D_g}{h} \right)^{-0.333} \quad (2.18)$$

Seaburn and Laushey (1967) carried out a theoretical and experimental studies for non-cohesive beds downstream of culvert outlets to determine the critical stream velocity

for initiation of motion of bed material. They found that the critical velocity for the case of a culvert running full took the form

$$\frac{V_{mc}^2}{g(D_g^3/D_{cul}^2)} = C_1 \quad (2.19)$$

while for a culvert running partially full,

$$\frac{V_{mc}^2}{gD_g} = C_2 \quad (2.20)$$

in which $C_1 = 10.9$ for large natural gravel and 18.3 for spheres and rounded gravel, $C_2 = 3.1$ and D_{cul} = culvert pipe diameter.

Tse (1977) carried out a laboratory study to investigate the effects of channel width and tailwater depth on the scour hole that developed in a loose bed at culvert outlet. He found that the reduction of the downstream channel width resulted in a distinct reduction of the depth of scour.

Neill and Yalin (1969) suggested a new definition for the beginning of bed movement based on a certain degree of established movement rather than zero movement. They used the similarity consideration to come up with a non dimensional parameter N

$$N = \frac{nD_g^3}{U_*} \quad (2.21)$$

in which n = number of grains displaced per unit area of bed per unit time. They suggested, $N = 10^{-6}$, as a suitable value to be adopted as "beginning of bed movement".

Bormann (1988) combined the effect of the slope of channel when calculating the critical shear resistance (τ_{cr}) on a flat bed (see Figure 2.6) and obtained an equation in the form

$$\frac{\tau_b}{\tau_{cr}} = \frac{\cos\alpha (\tan\phi + \tan\alpha)}{\tan\phi} \quad (2.22)$$

in which α = bed slope; ϕ = angle of repose of the sediment particles. Stevens and Simons (1971) obtained the same Eq. 2.22 using a safety factor of 1.0 and $\lambda = 90^\circ$ where λ is the angle between the stream direction and the perpendicular to the centerline.

2.5 Expanding Stilling Basin

The idea of using expanding stilling basins is almost as old as the first stilling basins. The experiments conducted by Riegel and Beebe (1917) involved various elements such as blocks and sloping bottoms. Their final design included a small expansion angle and a submerged jump, thus avoiding flow separation from the boundary and the sweep out of the jump. For the design of a dissipator located downstream of a chute junction, Knauss (1971) considered four different dissipators, including a flip bucket, a conventional stilling basin, a bucket-type basin and an expanding stilling basin provided with baffles. The last solution was finally preferred mainly because of simplicity and operational safety.

Nettleton and McCorquodale (1989) investigated gradually expanding stilling basins with one row of baffle blocks. They listed several advantages of this design

including:

- 1) A significant reduction of the size and cost of control gates or tunnels for a definite value of the tailwater velocity,
- 2) A reduction of the conjugate depth needed compared with a classical jump with identical approach conditions,
- 3) Similar flow patterns as in a sloping basin in case of uncertain water levels.
- 4) Improved efficiency compared with a prismatic basin for low inflow Froude numbers.

Bermen and Hager (1995) carried out sets of experimental tests to detect the most suitable appurtenance by which the overall jump pattern may be significantly improved. A comparison between drops, deflectors, blocks and baffle sills indicated that a central baffle sill improves the jump asymmetry for variable inflow and tailwater conditions. In addition to a reduction of the jump length, the sill provided a rapid expansion of the inflow jet and a uniform velocity distribution in the tailwater.

2.6 Decay of Turbulence Downstream from a Stilling Basin

The decay of turbulence downstream from a stilling basin is important in the design of erosion protection. Lipay and Pustovoit (1967) studied the decay of turbulence downstream from a stilling basin. They summarized their results in an equation for u_A^* , the maximum instantaneous velocity near the bed,

$$\frac{u_A^*}{u_2} = 1.2 + \frac{0.2 F_1}{1 + 0.07 \left(\frac{x}{y_2} \right)^2} \quad (2.23)$$

where x = distance downstream of the basin.

2.7 Pressure Fluctuations in the Hydraulic Jump

As McCorquodale (1986) indicated, pressure fluctuations in the hydraulic jump have been studied by many researchers (Khader (1974), Vasiliev (1967) and Narayanan (1980)). Typical pressure fluctuations at the bottom of free surface and open conduit hydraulic jumps are shown in Figure 2.7. The peak pressure fluctuations occur at about 25% of the jump length in both cases. The dimensionless pressure fluctuation is,

$$\left(\frac{\sqrt{P'^2}}{\rho u_1^2} \right)_{\max} = 0.033 - 0.04 \quad (2.24)$$

at $x \approx 0.2 L_j$ to $0.3 L_j$. Figure 2.7. indicates that the pressure fluctuations in a closed conduit are slightly higher than with a free surface. Khader et al. (1974) studied the hydraulic jumps with Froude number of approximately 6 and found that the constant in Eq. 2.24 was approximately 0.042 at $x \approx 10 y_1$. He also determined the spectral density and autocorrelation functions at various positions on the bed of the jump. His analyses showed a peak in the spectral density function at $f y_1 / u_1 \approx 0.05$ where f is the frequency.

CHAPTER III

THEORETICAL ANALYSIS

3.1 Introduction

Based on the laboratory observations (see Chapter V), local scour downstream of a secondary stilling basin of a dam with low tailwater level was studied. Scour depth was measured at 56 points on a two dimensional grid as well as maximum scour point(s). The gathered data points are then translated by a bilinear interpolation function into a 3 dimensional surface and plotted in MATLAB program,

Dynamic loading on the secondary stilling basin was studied using:

- a) Lateral and longitudinal correlation analysis,
- b) Numerical integration methods,
- c) Fast Fourier transform analysis.

3.2 Hydrodynamic Equations

3.2.1 Continuity Equation

The continuity equation in tensor form for steady flow is given by;

$$\frac{\partial u_i}{\partial x_i} = 0 \quad (3.1)$$

Eq. (3.1) can be written for a two dimensional form as

$$\frac{\partial u}{\partial X} + \frac{\partial v}{\partial Y} = 0 \quad (3.2)$$

in which u = time average local velocity in X-direction and v = time average local velocity in Y-direction.

3.2.2 Momentum Equation

The Reynolds equation for turbulent flow in tensor form is given by

$$\rho \left(\frac{\partial u_i}{\partial t} + u_j \frac{\partial u_i}{\partial X_j} \right) = - \frac{\partial p}{\partial X_i} + \frac{\partial}{\partial X_i} \left(\mu \frac{\partial u_i}{\partial X_j} - \overline{\rho u_i u_j} \right) + \rho g_i \quad (3.3)$$

in which $\overline{\rho u_i u_j}$ = Reynolds stress and p = pressure. Neglecting Reynolds stress and for two dimensional flow and assuming $(\partial u_i / \partial t) \approx 0$; Eq. 3.3 can be simplified and re-written, taking the bed in X-direction, as follows:

$$u \frac{\partial u}{\partial X} + v \frac{\partial u}{\partial Y} = - \frac{1}{\rho} \frac{\partial p}{\partial X} + \frac{1}{\rho} \frac{\partial \tau}{\partial Y} + g \sin \theta \quad (3.4)$$

in which τ = the local time average shear stress, and θ = the bed slope.

3.3 Dimensional Analysis

The governing parameters which influence the local scour phenomenon downstream of a stilling basin can be classified as follows:

i) Control Structure Characteristics

width of the structure, B ,

upstream water depth, H_1 ,

gate opening height, G ,

length of the apron, L ,

end sill slope, α ,

ii) **Bed Material Characteristics**

median bed material diameter by weight, D_{50} ,

standard deviation of bed material particle sizes, σ ,

sediment specific gravity, S_s ,

shape factor, S_p ,

particle fall velocity, V_s ,

iii) **Fluid Characteristics**

density of water, ρ ,

gravitational acceleration, g ,

dynamic viscosity, μ ,

iv) **Flow Characteristics**

depth of approach, y_a ,

tailwater depth, y_t ,

scour depth, y_s ,

average velocity of approach, U_a ,

v) **Time Factor**

time since the scour started, t .

The dependent variable y_s may be expressed in terms of other variables by the following functional relationship for the case where B is equal to the channel width.

$$y_s = f_1(B, H_1, G, L, D_{50}, S_s, S_p, V_s, \sigma, \alpha, \rho, g, \mu, y_a, y_c, U_a, t) \quad (3.5)$$

Applying the Buckingham π -theorem, with U_a, y_a, ρ as repeating variables, Eq. 3.5 is transformed to

$$\frac{y_s}{y_a} = f_2\left(\frac{B}{y_a}, \frac{H_1}{y_a}, \frac{G}{y_a}, \frac{L}{y_a}, \frac{D_{50}}{y_a}, S_s, S_p, \alpha, \frac{V_s}{U_a}, \frac{\sigma}{y_a}, \frac{U_a}{\sqrt{g y_a}}, \frac{\mu}{\rho U_a y_a}, \frac{y_c}{y_a}, \frac{t U_a}{y_a}\right) \quad (3.6)$$

Since the flow was in the fully turbulent regime, the viscosity had a negligible effect on the local scour; hence, Eq. 3.6 can be simplified to the form

$$\frac{y_s}{y_a} = f_3\left(\frac{B}{y_a}, \frac{H_1}{y_a}, \frac{G}{y_a}, \frac{L}{y_a}, \frac{D_{50}}{y_a}, S_s, S_p, \alpha, \frac{V_s}{U_a}, \frac{\sigma}{D_{50}}, F_{ra}, \frac{y_c}{y_a}, \frac{t U_a}{y_a}\right) \quad (3.7)$$

in which F_{ra} is the Froude number at the end of the apron at the location of y_s .

3.4 **Velocity and Momentum Distributions**

3.4.1 **Velocity-Distribution Coefficient**

As a result of nonuniform distribution of velocities over a channel section, the velocity head of an open channel flow is generally greater than the value computed according to the expression $V^2/2g$, where V is the mean velocity. When the energy

principle is used in the computation, the true velocity head may be expressed as $\theta' V^2 / 2g$, where θ' is known as the energy coefficient or Coriolis coefficient. Experimental data indicate that the value of θ' varies from about 1.03 to 1.36 for fairly straight prismatic channels.

3.4.2 Determination of Kinetic Energy Coefficient

Let ΔA be an elementary area in the whole water area A , and γ the unit weight of water; then the weight of water passing ΔA per unit time with a velocity v is $\gamma v \Delta A$. The kinetic energy of water passing ΔA is $\gamma v^3 \Delta A / 2g$ based on the product of the weight $\gamma v \Delta A$ and the velocity head $v^2 / 2g$. The total kinetic energy for the whole water area is equal to $\sum \gamma v^3 \Delta A / 2g$.

Taking the whole area as A , the mean velocity as V , and the corrected velocity head for the whole area as $A\theta' V^2 / 2g$, the kinetic energy is $\theta' \gamma V^3 A / 2g$. Equating this quantity with $\sum \gamma v^3 \Delta A / 2g$, the velocity-distribution coefficient can be expressed as

$$\theta' = \frac{\int v^3 dA}{V^3 A} = \frac{\sum v^3 \Delta A}{V^3 A} \quad (3.8)$$

3.4.3 Momentum-Distribution Coefficient

The nonuniform distribution of velocities affects the computation of momentum in open channel flow. The momentum of the fluid passing through a channel section per unit time is expressed by $\beta' \gamma QV / g$, where β' is known as the momentum coefficient or Boussinesq coefficient; γ is the unit weight of water; Q is the discharge; and V is the

mean velocity.

3.4.4 Determination of Momentum-Distribution Coefficient

The momentum of water passing ΔA per unit time is the product of the mass $\gamma v \Delta A$ / g and velocity v , or $\gamma v^2 \Delta A$ / g. The total momentum is $\sum \gamma v^2 \Delta A$ / g. Equating this quantity with the corrected momentum for the whole area, or $\beta \gamma A V^2$ / g, and reducing,

$$\beta' = \frac{\int v^2 dA}{V^2 A} = \frac{\sum v^2 \Delta A}{V^2 A} \quad (3.9)$$

3.5 Correlation Function

3.5.1 General

The geometrical and kinematic relations involved in turbulence can be studied through correlations and spectrum functions. The pressure fluctuations at time T can be

expressed as:
$$P = \bar{P} + p' \quad (3.10)$$

$$\bar{P} = \lim_{T \rightarrow \infty} \frac{1}{2T} \int_{-T}^{+T} P(t) dt = \lim_{T \rightarrow \infty} \frac{1}{T} \int_0^T P(t) dt \quad (3.11)$$

where \bar{P} is the average pressure and p' is the time varying-component. Intensity of pressure fluctuations (P_{rms}) defined by the root-mean-square value of P .

$$P_{rms} = \sqrt{\overline{P^2}} = \left[\lim_{T \rightarrow \infty} \frac{1}{T} \int_0^T P^2(t) dt \right]^{1/2} \quad (3.12)$$

3.5.2 Eulerian Correlation

The correlation between the two values of a fluctuating quantity (measured pressure) at a fixed point in the flow field at two different instants t' and $(t' - \tau)$ is called Eulerian correlation. Its coefficient is

$$R_E(\tau) = \frac{\overline{p'(t') p'(t' - \tau)}}{\overline{p'^2}} \quad (3.13)$$

where the average is taken with respect to time t' .

3.5.3 Lateral and longitudinal Correlations

Correlations between pressure components at two points in the flow field appears to be functions of the distance between the two points. Since features of the formulae are the same for both lateral and longitudinal correlation coefficients $g(r, \tau)$ and $f(r, \tau)$, respectively, it will suffice to consider here only lateral correlation coefficient between pressure at the two points A and B. Both points for simplicity are taken on the X axis, A with the coordinate ξ and B with the coordinate $\xi + x$. By definition, the lateral correlation coefficient is:

$$g(x) = \frac{\overline{p'(\xi) p'(\xi + x)}}{\overline{p'_{rms}(\xi) p'_{rms}(\xi + x)}} \quad (3.14)$$

3.6 Fourier Transform

Fourier transform is one of the most well-known applications to analyze the linear time-invariant systems. The essence of the Fourier transform of a waveform is to decompose or separate the waveform into a sum of sinusoids of different frequencies. If

these sinusoids sum to the original waveform then we have determined the Fourier transform of the waveform.

The Fourier transform identifies or distinguishes the different frequency sinusoids (and their respective amplitudes) which combine to form an arbitrary waveform. Mathematically, this relationship is stated as

$$S(f) = \int_{-\infty}^{\infty} s(t) e^{-j2\pi ft} dt \quad (3.15)$$

where $s(t)$ is the waveform to be decomposed into a sum of sinusoids, $S(f)$ is the Fourier transform of $s(t)$, and $j = \sqrt{-1}$.

3.6.1 Discrete Fourier Transform

If a discrete time sequence is periodic, its Fourier transform will be discrete and periodic in frequency. This transform is known as the Discrete Fourier Transform, or DFT. Given a finite-duration, real discrete time signal $x(nT)$, a corresponding periodic signal $x_p(nT)$ with period NT can be formed as

$$x_p(nT) = \sum_{r=-\infty}^{\infty} x(nT + rNT) \quad (3.16)$$

The DFT of $x_p(nT)$ is defined by

$$X_p(jk\Omega) = \sum_{n=0}^{N-1} x_p(nT) W^{-kn} \quad (3.17)$$

where $W = e^{j\omega_0 N}$, $\Omega = \omega_0 / N$, $\omega_0 = 2\pi / T$. It is very important to notice that the DFT can be viewed as a sampled version of Fourier transform of a non-periodic discrete time sequence.

The direct evaluation of DFT involves a considerable amount of computation. The efficient and up-to-date approach for the evaluation of the DFT is through the use of Fast Fourier Transform (FFT) algorithms. These algorithms are decimation-in-time and decimation-in-frequency algorithms.

In the experimental work, pressure on the secondary stilling basin is a continuous non-periodic waveform. It should also be mentioned that the pressure samples recorded by a microcomputer are discrete, non-periodic in time and have Fourier transforms that are both continuous and periodic in frequency. FFT can be performed on a non-periodic discrete time sequence. It always assumes that it is operating on one period of a periodic waveform. Thus, the FFT treats a non-periodic signal just as if it represented one complete cycle of a periodic waveform.

Frequency analysis of the experimental data was performed by using MATLAB software. The Program in appendix B was written to take the Fast Fourier Transform (FFT) of the pressure signals.

CHAPTER IV

EXPERIMENTAL STUDIES

4.1 General

The experimental work was carried out in the Hydraulic Engineering Laboratory (B03, Essex Hall) at the University of Windsor to investigate three conditions at a retrofitted stilling basin: a) Local scour downstream of secondary stilling basin; b) Pressure distribution over the secondary stilling basin; c) Velocity distribution over the secondary stilling basin and over the end sill. The Shand Dam was used as a case study.

The experiments were conducted for different end sill slopes, tailwater levels and discharges. Local scour measurements and velocity measurements were carried out for three end sill slopes and four flow rates were used. The pressure measurements were made for seven end sill slopes and three flow rates were applied.

4.2 Experimental Apparatus

4.2.1 Physical Model

A 1:49 scale model of the Shand Dam was constructed in a 4.9 m long by 3.0 m wide by 0.8 m deep basin. Figures 4.1 and 4.2 show the general layout for the experimental setup. The river bed material contained 150 mm median diameter fragments of limestone. Therefore, with the defined scale of 1:49, marble chip with a d₅₀ of 3 mm was used as bed material in the model. Grain size distribution of the model is shown in

Figure 4.3. The coefficient of nonuniformity $U = D_{60} / D_{10} = 3.37 / 2.06 = 1.64$ which means the granulometry of the soil was very uniform.

For modelling erosion processes three major forces are due to inertia, gravity and viscosity. These are often expressed as the Froude Law and Reynolds Law. Simultaneous obedience to the scaling laws of Froude and Reynolds in a small scale model is difficult and requires the use of a model fluid, which satisfies the following relationship:

$$\frac{\mu_r}{\rho_r g_r^{1/2}} = L_r^{3/2} \quad (4.1)$$

Since in the conducted experiments the same fluid is used in model and prototype, it is obviously not possible to satisfy both the Froude and Reynolds law simultaneously in the model. In free surface models, the Froude model law must be followed in order to achieve a geometrically similar reproduction of the water surface and propagation of surface disturbances. As a result, the minimum Reynolds number for 1:10000 year flood (maximum modelled flow rate) has been imposed.

$$Re_{min} = \frac{4vy}{v} = \frac{4vy}{v} \times \frac{w}{w} = \frac{4Q}{wv} = \frac{4 \times 0.068 \text{ cms}}{1 \text{ m} \times 10^{-6} \text{ m}^2 / \text{ s}} = 2.7 \times 10^5 \quad (4.2)$$

in which v and y are the velocity and depth of flow, respectively. Moody diagram with $Re = 2.7 \times 10^5$ and relative roughness $= \varepsilon / D = \varepsilon / 4 R = \varepsilon / 4 y = 3 / (4 \times 100) = 0.0075$, ε is the channel roughness and R is the hydraulic radius, confirms that model is in fully turbulent rough regime, i.e., the same as in the river. In this regime, a change in the Reynolds number does not cause any change in the Darcy's friction factor.

The model consisted of the following parts: a) forebay, b) spillway, c) primary stilling basin, d) secondary stilling basin, and e) a portion of the river downstream of the structure (Figures 4.4 and 4.5). The first section upstream of the discharge point contained the holding tank fed by a 150 mm feed pipe. The required flow was released by the opening gate valve which caused the forebay reservoir to fill up. With the dam's gates fully open, water was delivered to the secondary stilling basin and to the end sill where the velocity and pressure could be measured. Each test was run for half an hour and scour depths on the bed were measured afterwards.

Table 4.1 gives the discharge, forebay and tailwater levels for each respective return period, T_r , studied. Discharge and water level data were obtained from rating curves prepared by Acres International Limited.

Table 4.1 Shand Dam Model Setup Data

Flow Tr	Q Proto cms	Q Model cms	TWL Proto m	Pt gauge inches	Forebay Proto m	Pt gauge inches
10	431	0.026	406.906	5.86	419.23	21.32
100	660	0.039	407.536	6.36	420.372	22.24
500	820	0.049	408.063	6.79	421.062	22.79
Hazel	994	0.059	408.5	7.14	421.8	23.38
10000	1150	0.068	408.844	7.41	422.375	23.85
S.S.B. Flr Elev. 402.665 m						
Crest Flr Elev. 415.747 m						
River bed 402.665 m Elv.						

Laboratory B03 is equipped with two variable-speed DC centrifugal pumps and a hydraulic flow recirculation system. The pumps are rated for a discharge of 189 L S and a rated pumping head of 7.6 meters. Pressure and velocity over the secondary basin and end sill were measured with the use of 20" (500 mm) differential pressure transducers. They are referred to as linear variable displacement transducers (LVDT).

In order to measure the scour, a traversing system was made in the Central Shop. University of Windsor. With the use of this system, scour depth was measured at selected locations on the bed by a 19 mm potentiometer gauge. This system was also used to measure velocity over the secondary stilling basin and over the end sill at any depth and at any lateral position. Test Control Software (TCS), part of the MEGADAC analog to digital (A-D) system, collected the data from the transducers and potentiometer and converted them to ASCII files appropriate for use by a spreadsheet program.

4.2.2 Devices

4.2.2.1 General

Figures 4.6, 4.9, 4.10 and 4.11 show the devices that were used to measure and record discharge, pressure, velocity and scour.

4.2.2.2 Pressure Transducer

Seven pressure transducers (Durham P-3061-20", Figures 4.6 and 4.7) were used to measure the pressure on the 13 locations of secondary stilling basin (Figures 4.8). In

order to obtain the velocity at 6 locations over the secondary stilling basin and end sill. one of the 20" (500 mm) pressure transducers was used to record the differential dynamic pressure measured with a specially designed Pitot-Static tube that later on would be converted to velocity.

The pressure transducer had an all-welded Ni-Span C capsule as a pressure sensor. The deflection of the capsule when pressurized was measured by an LVDT displacement sensor whose core was directly coupled to the capsule. The LVDT produced an electrical output (in Volts) that was directly proportional to the core movement which, in turn, was proportional to the pressure applied to the capsule.

4.2.2.3 Potentiometer Gauge

HLP 190/FS-Flange Mounting with Spring Loaded Shaft (Figure 4.9) was applied to measure the local scour on the bed downstream of the model dam. Figure 4.10 shows the scour pattern for Hazel flood and low transitional end sill. Potentiometer is basically a variable resistor in this case wire-wound with a sliding tap. It can be used as a position sensor to convert displacements to resistance and hence voltage. The specifications of this type of potentiometer were: (i) 150 mm electrical stroke; (ii) $6\text{ k}\Omega \pm 10\%$ resistance; (iii) $\pm 0.15\%$ independent linearity; (iv) 3.0 Watts power dissipation at 20°C ; (v) -50°C to $+85^\circ\text{C}$ operational temperature range. Sensor maximum full scale was 10.1181 inches and its minimum resolution was 0.0003 inch. The potentiometer had a sensitivity of 1012.0 mv per inch per 10 volts.

4.2.2.4 Flowmeter

A digital flowmeter (Figure 4.11) displayed the flow rate to an accuracy of ± 0.6 L/s (10 US gpm). This meter measured the flow through the use of a paddle wheel system within the 150 mm feed pipe. Also, as a check, flow was measured using a Foxboro electromagnetic flow metering device with an accuracy of ± 1.6 L/S (25 US gpm). The flow rate delivered by the pump to the model could be controlled by manually adjusting a gate valve on the feed pipe.

4.2.2.5 Modified Pitot-Static Tube

Due to high pressure gradients and high fluctuations of the water surface, the ordinary Pitot-Static tube would lead to errors in measuring the velocity of flow. The modified Pitot-Static tube (Figure 4.12) was used to eliminate the effect of the difference in the location of static pressure and the dynamic pressure ports. The modified Pitot-Static tube consists of one total pressure port and eight static pressure ports arranged to measure the differential pressure. Actual principle dimensions of the modified Pitot-Static tube are given in Figure 4.13.

4.2.3 Calibration of devices

4.2.3.1 Pressure Transducer

Each of the pressure transducers was calibrated by applying a known pressure on port one (P1) while port two (P2) was open to the atmosphere. The output voltages from the pressure transducer were converted and recorded by a microcomputer (Figure 4.14). Also for verification of transducer readings, manometer tubes were used. All manometer

tubes and transducers were levelled with respect to the primary stilling basin.

4.2.3.2 Modified Pitot-Static Tube

The modified Pitot-Static tube was calibrated before it was used to measure the velocity of flow by means of a precalibrated standard Pitot-Static tube and a manometer. For a given flow rate, the standard Pitot-Static tube was fixed in the traversing system and connected to the manometer and was used to measure the velocity profile at a given location in nearly uniform flow (zero pressure gradient). The manometer readings were recorded and the velocity profile was computed. The standard Pitot-Static tube was removed and replaced by the modified Pitot-Static tube to measure the same velocity profile. Both of the velocity profiles were found to be in a good agreement (Figure 4.15).

4.3 Experimental Procedure

The tests were conducted in three phases: a) pressure measurements; b) velocity measurements and c) scour measurements. The following general procedure was used prior to and during each test:

1. Set end sill with desired slope,
2. Grade bed material to required level elevation,
3. Cover the bed with an aluminum sheet to prevent erosion of material during initial discharge until required forebay and tailwater levels have been established,
4. Set forebay and tailwater point gauges,
5. Open all spillway gates,

6. Prime the pump,
7. Start the pump,
8. Switch the flowmeter "ON",
9. Set up the measuring device (for pressure measurements see steps 10 to 20; for velocity measurements see steps 21 to 28 and for scour measurements see steps 29 to 41).

Steps 10 to 20 are specific to pressure measurement tests (see Figure 4.7):

10. Open the gate valve to achieve a low discharge through the spillway for the purpose of bleeding the lines,
11. Fill the tubes with water and remove all air bubbles in them,
12. The Pressure at 13 points (7 longitudinal points and 6 lateral points) has to be measured by 7 transducers. As a result, 13 clamps were used to close and open the tubes for the required pressure taps.
13. Connect lines to the transducers and manometer tubes,
14. Stop the flow in the tubes by closing all clamps on each tube in order to avoid any pressure reading by transducers,
15. Connect the transducers to the MEGADAC interface and Load the TCS program,
16. Set the data sampling rate (25 readings per second),
17. Zero-adjust all the transducers,
18. Increase the pump flow until the required discharge, forebay level and tailwater level are obtained.
19. Open clamp A and take readings for the lateral points from the computer for

the defined time step,

20. Close clamp A and open clamp B and take readings for longitudinal points.

Steps 21 to 28 are specific to velocity measurement tests:

21. Set the Pitot-Static tube at the desired point over the secondary stilling basin.

22. Put the Pitot-Static tube in a bucket of water.

23. Fill up the tubes with water and remove all air bubbles inside them.

24. Connect the Pitot-Static tube to a 20" pressure transducer,

25. Connect the transducers to the MEGADAC interface and Load the TCS program,

26. Zero-adjust the transducer,

27. Remove the Pitot-Static tube from the bucket of water and place it at the desired point in the secondary stilling basin,

28. Open the gate valve to obtain the required discharge through the structure and start the readings as outlined in step 19.

Steps 29 to 41 are specific to scour measurement tests:

29. Grade bed material to required level elevation,

30. Set the potentiometer at the desired point over the bed and connect it to the computer ready for use,

31. Measure the initial bed elevation by the potentiometer and by the TCS program zero the elevation reading. Since water will damage the potentiometer, during the test potentiometer should be in a location outside of water.

32. Cover bed material with an aluminum sheet to prevent erosion of material during initial discharge through the structure and until the required forebay and

tailwater levels have been established,

33. Increase pump flow until the required discharge, forebay elevation and tailwater elevation have been achieved.

34. Run the test for 30 minutes. Raise the TWL and shut down the pump.

35. Wait until all the water leaves the bed area then relocate the potentiometer.

36. Start measuring scour by slowly releasing the potentiometer until it just reaches the bed level.

37. Record both the scour measurement and its location (x, y coordinates).

38. Repeat step 36 and 37 for 56 points including maximum scour to obtain the scour profile,

39. Set the tailwater point gauge to high tailwater level (2 cm more than the standard tailwater level).

40. Repeat steps 29 to 39.

41. For the natural tailwater level repeat steps 29 to 39,

42. Return to step 1 for preparation of the next test.

CHAPTER V

ANALYSIS OF EXPERIMENTAL DATA

5.1 General

The effect of various flow rates, end sill configurations and tailwater levels on scour depths downstream of a secondary stilling basin are discussed in this chapter. Optimum end sill slope is determined in order to obtain minimum scour depth on the bed far from the structure.

Velocity profiles at different flow depths within secondary stilling basin and above the end sill are shown. Correlation functions and correlation lengths are determined from pressure measurements on the secondary stilling basin. Energy spectrum and Fourier transform of the pressure are used as a measure of dynamic loading on the floor of secondary stilling basin.

All the results are based on fully opened gates. For the pressure measurements, the primary stilling basin had a row of baffle blocks. The baffle blocks were removed in the final design because the earlier model studies indicated very high forces on the baffles; the cost of anchoring for these baffles made it advisable to investigate the effect of removing them. As a result, the velocity and scour depth measurements were carried out without baffle blocks.

5.2 Scour Hole Profile

5.2.1 Reduction of Raw Data

Scour profiles were obtained by measuring scour depths (z) at selected horizontal positions (x,y) where x and y were in lateral and longitudinal directions, respectively (see Chapter IV). Tables A-1 to A-16 give examples of raw data for the scour hole. Flows rates were the model equivalents of 1 in 100, 1 in 500, Hurricane Hazel and 1 in 10000 year floods. End sill slopes were 1V:2H (26.5°), 1V:5H (11.3°) and 1V:6H (9.46°). Tailwater level was set at low, standard and high levels.

5.2.2 Three-Dimensional Scour Profiles

5.2.2.1 General

MATLAB program PC version 4.0 was used to process raw data and produce three-dimensional (3-D) plots of the scour profiles. For this purpose, MATLAB ".m" programs were written as listed in Appendix B. Since input data were discrete measurements on a two dimensional grid, bi-cubic interpolation was applied in order to obtain more accurate and smoother profiles.

Figures 5.1 to 5.35 show typical 3-D scour hole profiles and contour lines for different flows, end sill slopes and tailwater levels. Maximum scour depths and their coordinates are also depicted.

5.2.2.2 End Sill Slope 1V:2H

Figures 5.1 to 5.10 show the scour patterns for an end sill slope 1V:2H. The

potential of the scour downstream of the dam is very high and puts the structure at great risk. Increasing the flow rate resulted in an increase in the amount of scour. Scour depth for the 1:500 year flood was more than 8 m (prototype) and could undermine the training walls and endanger the earth embankment. For the Hazel flood and 1:10000 year flood, scour depth was so high that the flume bed was exposed (Figure 5.9). In this case, the secondary stilling basin performed like a flip bucket causing the exiting jet to follow a rising and then a plunging trajectory. In addition, the secondary basin still was not effective in reducing the kinetic energy. As a result, hydraulic jump occurred on the unprotected bed and caused a large scour hole. Figure 5.10 shows three hydraulic jumps: one on the primary basin, another on the secondary basin and the last on the river bed for Hurricane Hazel.

5.2.2.3 End Sill Slope 1V:5H

Figures 5.11 to 5.19 show the scour results when end sill angle was 11.3° (1V:5H). As the figures suggest, the scour depths were considerably reduced compared to the case with slope 26.5° ; for instance, scour depth was reduced by 60% at Hazel flood. Since maximum scour occurred far from the structure, there is a reduced danger to the dam. Hydraulic jumps occurred in the primary and secondary stilling basins and not on the unprotected bed (Figure 5.19).

5.2.2.4 End Sill Slope 1V:6H

The model with an end sill angle 9.46° produced a very low amount of scour with practically no undercutting of the end sill (Figures 5.20 to 5.27). The maximum scour

depth was reduced by 85% compared to scour produced in end sill 1V:2H for Hazel flood. In this arrangement, the secondary hydraulic jump was completely contained by the secondary stilling basin. There was no plunging jet and no in-river hydraulic jump for flows up to the Hazel flood.

5.2.2.5 Effect of Tailwater Level

Figures 5.28 to 5.35 are based on different tailwater levels for two end sill slopes: 1V:2H and 1V:5H. Tailwater levels (TWL) that were tested for Hazel flood are high, low and standard. In order to investigate the effect of high TWL, the standard TWL (data in Table 4.1) was raised by 20 mm. Low TWL was set to produce critical water depth on the river bed.

The highest TWL resulted in the least scour in all cases. Scour depths were reduced by 28% and 39% for end sill slopes 1V:5H and 1V:2H, respectively relative to the standard TWL (Figures 5.28 to 5.31). Decreasing the TWL caused more erosion on the bed river. For the model with end sill slope 1V:5H and 1V:2H maximum scour depth was increased by 45% and 15%, respectively compared to the standard TWL as shown in Figures 5.32 to 5.35.

In the studies on the effect of TWL, the difference between water level above the end sill and TWL, Δy , is an important parameter (Figure 5.36). As the TWL increases, Δy decreases; as a result, the plunging jet has lower potential energy and causes lower scour at high TWL. However, at low TWL, because of higher Δy the jet has more energy

to dissipate which increases the scour depths. The maximum scour depths at different tailwater levels are shown in Figures 5.37 to 5.39. The flow rate is the model equivalent of Hurricane Hazel.

5.3 Velocity Measurements

5.3.1 General

Velocities were measured at 6 locations in the lateral direction (one at each bay and two at the corners) at 0.2, 0.5 and 0.8 of the depths in the middle of secondary stilling basin and over end sill. The selected flow rates were the model equivalent of 1:100, 1:500, Hazel and 1:10000 year floods. End sill slopes were 1V:5H, 1V:6H and 1V:2H. Energy and momentum coefficients were determined over both the secondary stilling basin and the end sill. The measured raw data are listed in Tables A-17 to A-31 (see Appendix A).

5.3.2 Dimensional Analysis of Velocity Distributions

Figures 5.40 to 5.43 show the velocity distributions in lateral direction within the secondary stilling basin (S.S.B.) for end sill slopes 1V:6H and 1V:2H. The measured velocities for the selected depths were all non-uniform. To investigate this phenomenon, velocities were measured in the primary stilling basin. These results were also non-uniform which suggest that the water coming out of the feed pipe in the forebay area was not distributed uniformly. Previous tests with increased baffling of the influent gave more uniform velocity distribution.

Figures 5.44 to 5.49 are based on velocity distribution over the end sill (E.S.) with slopes 1V:6H and 1V:2H. The results are non-uniform because of the same reasons mentioned for velocities in the S.S.B. As shown in Figures 5.40 to 5.49 at the same flow rate because of higher water depth on S.S.B. and E.S., the non-uniformity of velocities for end sill 1V:2H is improved compared to that for the case with the end sill 1V:6H.

5.3.3 Non-Dimensional Presentation of Velocity Distributions

Figures 5.50 to 5.54 show the non-dimensional velocity distributions (V/V_1) based on different Froude numbers in S.S.B. and over E.S. In those figures the lateral direction is (Y/WB) where V = the measured velocity; V_1 = the initial velocity on the primary stilling basin or at the toe of spillway; Y = distance and WB = bay width.

Initial velocity (Chow 1986), water depth and Froude number at the toe of the spillway can be obtained (Figure 5.55) as:

$$V_1 = \sqrt{2g(z_s - \frac{H}{2})} \quad (5.1)$$

$$y_1 = \frac{Q}{V_1 \bar{w}} \quad (5.2)$$

$$Fr_1 = \frac{V_1}{\sqrt{gy_1}} \quad (5.3)$$

where H is the water level on the spillway; z_s is the fall or vertical distance from forebay level to the primary basin floor and \bar{w} is the mean width of the primary basin. The calculated Froude numbers for 1:100, 1:500, Hazel and 1:10000 year flood are 5.74, 5.21,

4.85 and 4.55, respectively.

Kinetic energy and momentum coefficients (see Chapter III) in the S.S.B. are determined in Tables 5.1 and 5.2. Flow rates were the model equivalent of 1:100, 1:500, Hazel and 1:10000 year floods. The water depth was measured in the middle of secondary stilling basin.

5.4 Pressure Measurements

5.4.1 General

The pressure values on the secondary stilling basin floor were measured at six longitudinal locations and seven lateral locations (see Figure 4.8). Three flow rates of 1:10, 1:100 and Hazel flood were tested with seven end sill slopes. 1V:5H, 1V:6H, 1V:7H, 1V:8H, 1V:4H, 1V:1H and 1V:2H. Lateral and longitudinal correlation functions and their corresponding correlation lengths were obtained. Moreover, power spectral density for points 3 and 5 at different end sill slopes were determined for the Hazel flood. The lateral correlation coefficient data are listed in Tables A-32 to A-52 (see Appendix A). Tables A-53 and A-54 are the summary of both lateral and longitudinal correlation lengths for different flow rates and end sill configurations.

5.4.2 Lateral Correlation

Total pressure (P_T) was measured at 7 points in the lateral direction located 12 and 220 mm away from the beginning of secondary stilling basin, from which correlation functions and correlation lengths (R_l) were calculated. The rms of the total pressure (P_{rms})

and R_l are shown in the Figures 5.56 to 5.97. Flow rates and end sill configurations have been mentioned in Section 5.4.1. As shown in Figures 5.56 to 5.85, for low end sill slopes the variation in the total pressure is small. For high end sill 1V:1H and 1V:2H (Figures 5.86 to 5.97) pressure variations are larger because of higher water depth and more water surface fluctuations on the secondary stilling basin.

Since the spatial correlation computation of one point is based on its adjacent points, the values obtained are not accurate for the first and the last points. For this reason, the correlation length graphs at points $y = 5$ and $y = 48$ cm are disconnected from other values. Figures 5.98 and 5.99 are the correlation functions for points 3 and 5 in the lateral direction for the Hazel flow with an end sill of 1V:6H. The correlation length was obtained by calculating the area under the correlation function graph.

Figures 5.100 to 5.141 show the non-dimensional correlation lengths and total pressures for seven end sill slopes and three Froude numbers. Since in lateral direction, bay width (WB) is an important parameter, the x and y axes of the non-dimensional graphs are based on (Y / WB) and $(R_l / WB, P_{rms} / WB)$ respectively. Figures 5.142 to 5.147 show the correlation functions for points 3 and 5 based on non-dimensional axes. In this experiment, the end sill slope was 1V:6H and the Froude number was 4.85.

5.4.3 Longitudinal Correlation

In Figures 5.148 to 5.168, the total pressures and correlation length in longitudinal direction are shown. Total pressure increased in the range of 100 mm to 200 mm away

from the beginning of the secondary basin, which means that the hydraulic jump must have occurred in this distance. The supercritical flow with low water level upstream of hydraulic jump becomes subcritical and water depth increases.

The water depth at the beginning of secondary basin was lower than the measured pressure because the exiting jet from primary basin rose and then plunged to the secondary basin. This condition created centrifugal forces which decreased the water depth. On the other hand, the water depth at the end of end sill was actually higher than measured pressures due to upward centrifugal effects.. This could be the result of curvilinear flow on the end sill. McCorquodale (1995) collected dynamic bed pressure data to confirm whether or not the depth profiles properly represented the loading on the top of the secondary stilling basin. He also found that due to the plunging jet from the primary stilling basin there was an downward impact force in the vicinity of $x=100$ mm.

The last two values on the total pressure graph (i.e. $x= 320$ mm and $x= 400$ mm) were measured on the end sill. In correlation graphs, the first and the last values are not accurate because the data are one-sided. Figures 5.169 and 5.170 show the correlation function for points 3 and 5, respectively with an end sill of 1V:6H and the Hazel flood.

Figures 5.171 to 5.191 show the non-dimensional lateral correlation lengths as well as total pressure. The tailwater level is an important factor affecting pressure measurements in longitudinal direction. As a result, the x and y axes are defined as (X / TWL) and $(Rl / TWL, Prms / TWL)$, respectively. The Froude numbers and the end sill

slopes are the same as those mentioned in Section 5.2.3. Figures 5.192 to 5.193 show the non-dimensional correlation functions for end sill slope of 1V:6H and Froude number of 4.85. For the Hazel flood, $\frac{\bar{p}}{p_{rms}}$ is in the range of 0.95 to 0.97 for end sill slopes 1V:6H to 1V:2H. Table 5.3 show the maximum, minimum, rms and average values of p' for end sill slopes 1V:6H and 1V:2H. Table 5.4 is based on non-dimensional parameter, $\frac{p'}{v_*^2/g}$, for Hazel flood and end sill slopes 1V:6H and 1V:2H.

5.5 Power Spectral Density

Figures 5.194 to 5.200 show the spectral energy for point 3 (at 44% of basin length) for the seven end sill slopes. Figures 5.201 to 5.207 show similar graphs for point 5 (at 82% of basin length, see Figure 4.8). All the graphs are based on the Hazel flood with various end sill slopes. Since the record length of pressure data was short, the lowest reliable frequency was 0.5 Hz. In MATLAB, fast Fourier transform (FFT) of pressure data was performed. FFT resulted in a complex series: $C_i = (A_i, \theta_i)$, where A_i represents the magnitude (maximum amplitude) of sinusoidal components at various frequencies, and θ_i corresponds to the phase of each sinusoidal component. Energy spectral density being proportional to the magnitude of FFT squared (A_i^2), is a measure of energy content of the pressure waves in the different frequency ranges. The integral of energy spectral density over the entire frequencies sums up to the total energy of the pressure waves. Therefore, frequency domain analysis offers an alternative calculation of pressure wave energy or hydraulic loading.

Table 5.1					
<i>Energy and Momentum Coefficients (Theta' & Beta') over the S.S.B.</i>					
Sill: 1:5	Flood	1:100 yr	1:500 yr	Hazel	1:10000 yr
	Depth (m)	0.07	0.08	0.1	0.12
	$A_i \cdot V_i$	0.039	0.05	0.08	0.104
	\bar{V} (m/s)	0.531	0.595	0.762	0.825
	$A_i \cdot V_i^3$	0.017	0.026	0.069	0.099
	Theta'	1.545	1.469	1.485	1.399
	$A_i \cdot V_i^2$	0.025	0.035	0.073	0.1
	Beta'	1.206	1.177	1.197	1.166
	KE (m)	0.022	0.027	0.044	0.049
Sill: 1:6	Depth	0.06	0.07	0.09	0.1
	$A_i \cdot V_i$	0.032	0.047	0.066	0.081
	\bar{v}	0.508	0.639	0.698	0.771
	$A_i \cdot V_i^3$	0.014	0.028	0.046	0.068
	Theta'	1.695	1.46	1.431	1.413
	$A_i \cdot V_i^2$	0.021	0.035	0.054	0.074
	Beta'	1.292	1.166	1.173	1.186
	KE	0.022	0.03	0.036	0.043
Sill: 1:2	Depth	0.11	0.12	0.13	0.14
	$A_i \cdot V_i$	0.059	0.079	0.097	0.116
	\bar{v}	0.511	0.627	0.711	0.789
	$A_i \cdot V_i^3$	0.023	0.052	0.074	0.109
	Theta'	1.492	1.674	1.508	1.51
	$A_i \cdot V_i^2$	0.036	0.061	0.082	0.109
	Beta'	1.194	1.231	1.188	1.191
	KE	0.02	0.034	0.039	0.048

Table 5.2					
<i>Energy and Momentum Coefficients (Theta' & Beta') over the End Sill</i>					
Sill: 1:5	Flood	1:100 yr	1:500 yr	Hazel	1:10000 yr
	Depth (m)	0.07	0.09	0.1	0.11
	$A_i \cdot V_i$	0.03	0.04	0.051	0.064
	V bar (m/s)	0.408	0.423	0.486	0.554
	$A_i \cdot V_i^3$	0.007	0.011	0.018	0.026
	Theta'	1.402	1.538	1.493	1.324
	$A_i \cdot V_i^2$	0.014	0.02	0.03	0.041
	Beta'	1.144	1.183	1.21	1.157
	KE (m)	0.012	0.014	0.018	0.021
Sill: 1:6	Depth	0.08	0.09	0.1	0.11
	$A_i \cdot V_i$	0.03	0.04	0.051	0.062
	v bar	0.357	0.423	0.486	0.537
	$A_i \cdot V_i^3$	0.005	0.009	0.017	0.025
	Theta'	1.308	1.258	1.41	1.398
	$A_i \cdot V_i^2$	0.013	0.019	0.029	0.038
	Beta'	1.214	1.124	1.169	1.141
	KE	0.008	0.011	0.017	0.021
Sill: 1:2	Depth	0.05	0.07	0.08	0.09
	$A_i \cdot V_i$	0.025	0.039	0.048	0.061
	v bar	0.476	0.531	0.571	0.646
	$A_i \cdot V_i^3$	0.008	0.014	0.021	0.033
	Theta'	1.413	1.272	1.343	1.295
	$A_i \cdot V_i^2$	0.015	0.023	0.031	0.045
	Beta'	1.261	1.11	1.132	1.141
	KE	0.016	0.018	0.022	0.028

Table 5.3 Hazel flood : point 5				
End sill:	$p'(rms)$	$p'(max)$	$p'(min)$	$p'(avg)$
1V:6H	0.52 cm	1.27 cm	-0.95 cm	0.05 cm
1V:2H	0.46 cm	1.09 cm	-1.44 cm	0.14 cm

Table 5.4 Hazel flood : point 5				
End sill:	$p'(rms)/v1^{2/q}$	$p'(max)/v1^{2/q}$	$p'(min)/v1^{2/q}$	$p'(avg)/v1^{2/q}$
1V:6H	0.008	0.02	-0.016	0.0008
1V:2H	0.007	0.018	-0.024	0.002

Point 5 is located at 82% of the secondary basin length

CHAPTER VI

DISCUSSION AND GENERALIZATION

6.1 General

In this chapter, the experimental data for the maximum scour depth on the river bed and pressure on the secondary stilling basin are generalized and expressed as formulae. Then dimensional and non-dimensional comparisons are made between measurement data and data predicted by proposed formulae. Moreover, the measured data are compared with the study results of other researchers.

6.2 Maximum Scour

As it was discussed in Chapter III, the scour depth can be expressed in terms of other variables:

$$\frac{y_s}{y_a} = f_3 \left(\frac{B}{y_a}, \frac{H}{y_a}, \frac{G}{y_a}, \frac{L}{y_a}, \frac{D_{50}}{y_a}, S_s, S_p, \alpha, \frac{V_s}{U_a}, \frac{\sigma}{D_{50}}, Fr_a, \frac{y_c}{y_a}, \frac{\tau U_a}{y_a}, \frac{y_*}{y_a} \right) \quad (6.1)$$

In Eq. 6.1 y_a = the water depth on the end sill can be replaced by H = difference between upstream and downstream water level in the dam (drop in HGL). Therefore, Eq. 6.1 can be expressed as:

$$\frac{y_s}{H} = f_4 \left(\frac{B}{H}, \frac{G}{H}, \frac{L}{H}, \frac{D_{50}}{H}, S_s, S_p, \alpha, \frac{V_s}{U_a}, \frac{\sigma}{D_{50}}, Fr_a, \frac{y_c}{H}, \frac{\tau U_a}{H}, \frac{y_*}{H} \right) \quad (6.2)$$

where:

$$Fr_* = \frac{q}{\sqrt{gHH}} \quad (6.3)$$

In the experimental work, in order to investigate the effect of end sill angle (α), flow rate (q) and tailwater depth (y_t) on the scour pattern, the parameters α , Fr , (y_t / H) and (y_* / H) from Eq. 6.2 have been systematically changed. It should be noted that (y_t / H) and (y_* / H) are inter-dependent. Since during the experimental work, the rest of the parameters were constant, they can be omitted in Eq. 6.2. Therefore,

$$\frac{y_s}{H} = f_s \left(\alpha, Fr, \frac{y_t}{H}, \frac{y_*}{H} \right) \quad (6.4)$$

$$y_* = TWL - Flr_{(S.S.B.)} \quad \text{Figure 5.36} \quad (6.5)$$

In Quattro Pro with the use of multiple non-linear-regression method, taking the least squares of error based on the measured data, the maximum scour depth (y_s) can be determined from this formula:

$$y_s + y_t = 5.65 H^{0.4} q^{0.5} \alpha^{0.54} y_*^{0.25} \quad (6.6)$$

where y_t = tailwater depth (m); H = water level on the spillway - tailwater level (m) as shown in Figure 2.1; α = end sill angle (Radian) for $0.165 \text{ rad} < \alpha < 0.463 \text{ rad}$. q = (total discharge) / (mean width of S.S.B.) = 0.039 to 0.068 m²/s. Eq. 6.6 indicates that H , flow rate and end sill slope have a direct effect on the scour depth.

Figure 6.1 shows the comparison between measured scour depths and predicted scour depths obtained from Eq. 6.6 for three end sill slopes. As it can be observed, the measured and estimated scour depths are found to be in good agreement (the standard

error is ± 0.015 m). Based on the Eq. 6.4 the non-dimensional form of scour depth can be expressed as:

$$\frac{Y_s + Y_c}{H} = 5.53 F_{r*}^{0.24} \alpha^{0.54} \left(\frac{Y_*}{H} \right)^{0.25} \quad (6.7)$$

Figure 6.2 shows the non-dimensional comparison between experimental scour depth and the approximation presented by Eq. 6.7. The standard error is ± 0.014 m.

6.2.1 Comparative study

Veronese (1937) presented the following relationship for plane plunging jets in a flume with discharge $q = 0.01$ to 0.07 m²/s and grain sizes $\bar{D} = 9, 14, 21$ and 36 mm:

$$Y_s + Y_c = 3.68 H^{0.225} Q^{0.54} \bar{D}^{-0.42} \quad (6.8)$$

where \bar{D} is expressed in mm and H is the difference in upstream and downstream water level (Figure 2.1). Veronese found from a second series of tests that scour varied less than predicted by Eq. 6.8 for $\bar{D} < 5$ mm. The scour for $\bar{D} < 5$ mm was given by:

$$Y_s + Y_c = 1.9 H^{0.225} Q^{0.54} \quad (6.9)$$

This relation is suggested by USBR (1973) as a limiting scour depth.

Figure 6.3 shows the predicted scour depth by Veronese (Eq. 6.9) based on the Shand Dam experimental conditions (q, H, \bar{D}). Since Veronese formula was based on plane plunging jets, the effect of end sill slope is in fact implied in his formula. As a result, for the case of end sill slope 1V:2H, the predicted scour depths are very close

to what were measured. However, Veronese prediction is poor for the case of small end sill slopes. The normal distribution can be used to compare the means of the Shand dam experimental data and Veronese prediction. The difference of means normalized to their deviation value (z) is:

$$z = \frac{|\bar{x}_1 - \bar{x}_2|}{S_d} \quad (6.10)$$

where mean $x_1 = 0.29$ m based on the Veronese prediction and mean $x_2 = 0.21$ m based on experimental data. S_d is the standard deviation of the difference of means = 0.0195 m which gives $z = 4.06$. For this study the chance error of up to 10% is acceptable. The probability of obtaining by chance a value of $z = 4.06$ is less than 0.01 percent. Therefore, the difference between the scour mean $y_s + y_t$ and the experimental scour is significant and not due to chance error. In Eq. 6.9, the effect of end sill slope was not considered; this accounts for some of the prediction error.

Catakli (1973) developed the following scour depth formula from small scale experiments on a spillway having a stilling basin with length $5y_t$ (Figure 2.1):

$$y_s + y_t = 1.6 H_1^{0.2} q^{0.6} D_{90}^{-0.1} \quad (6.11)$$

where $q = 0.05$ to 0.1 m²/s; $D_{90} = 1$ to 10 mm and y_s , y_t and H are in (m). The Shand dam experimental conditions were substituted in Eq. 6.11; the results are shown in Figure 6.4. For the end sill slope 1V:2H, the prediction is lower than the measured data. On the other hand, for the smaller end sill slopes his predictions are over estimated but close to measured data. From Eq. 6.9, with the mean $x_1 = 0.196$ m based on the Catakli prediction and $S_d = 0.018$ m, z is 0.86. The probability of getting a value of z of at least this

magnitude by chance is 19 percent. It can be interpreted that the observed difference in the scour depths is due to chance error and disregarding the effect of end sill slope in Eq. 6.11.

6.3 Maximum Pressure

In order to generalize the pressure values obtained from experimental work, total pressure was considered to be function of Froude number, tailwater level and end sill configuration. In Quattro Pro with the use of the multiple non-linear-regression method, minimizing least squares of the error, total pressure on the secondary stilling basin of the Shand dam model can be expressed as:

$$P_{rms} = 14.68 F_r^{-1.49} y_t^{-1.33} \alpha^{0.068} \quad (6.12)$$

where F_r is the initial Froude number on the primary stilling basin; y_t is tailwater depth (m); α is the end sill angle in radians which varies from 0.197 rad to 0.463 rad. Figure 6.5 shows the comparison between experimental pressure values and predicted pressure obtained from Eq. 6.12. This comparison is based on six end sill slopes and three flow rates. The standard error is ± 0.0095 m. The measured pressure values on the secondary stilling basin can be expressed in non-dimensional form as:

$$\frac{P_{rms}}{H} = 0.78 F_r^{-1.18} \left(\frac{y_*}{H} \right)^{-0.81} \alpha^{0.068} \quad (6.13)$$

where $y_* = TWL - Flr_{(S.S.B.)}$ (See Figure 5.36) and $F_r = \frac{V_1}{\sqrt{gy_1}}$. As shown by Eq. 6.13,

end sill slope does not have much effect on the pressure in the secondary stilling basin.

When the initial Froude number and tailwater level increase, the pressure decreases. Figure 6.6 shows the comparison between pressure values from Shand Dam model and Eq. 6.13. The estimated standard error is ± 0.0096 m.

6.4 Important Parameters in Scour Measurement

6.4.1 Effect of End Sill Slope on the Bed Scour

Figure 6.7 shows the maximum scour depths for various floods and end sill slopes. For the case of 1V:2H slope, the scour depths are very high and may pose a danger if installed at the dam. However, for the 1V:5H and 1V:6H cases, the scour depths are small and should not cause any problem for the structure. Figure 6.8 shows the maximum scour depths for various Froude number and end sill slopes. Comparing the scour depths between 1V:2H and 1V:6H, the z in Eq. 6.9 is 10.2. The probability of obtaining this z by chance, $F(z)$, is very small, less than 3×10^{-5} percent. The increased scour depths due to the 1V:2H sill are so great that they can not be due to chance error. Comparison of scour for 1V:5H and 1V:6H, gives $z = 1.63$ and $F(z) = 0.0515$ or 5.15 percent. It can be concluded that the observed difference in scour depth could be due to chance error.

From the above analysis, the effect of end sill slope on the scour pattern is clear. Scour depth increases with the angle of the end sill for α greater than approximately 1V:6H. For the case of 1V:2H, the secondary basin acted like a flip bucket causing the exiting jet to follow a rising and then a plunging trajectory. The plunging jet had a very high scouring potential and it creates its own stilling pool. For the 1V:5H and 1V:6H cases, since the secondary basin completely contained the secondary hydraulic jump, the

scour depth on the bed was considerably less and it occurred far from the structure. For the small end sill slopes, there was no plunging jet or third jump on the bed. The end sill angle α directly influenced the attack angle of the jet; the lower the attack angle with respect to the bed, the lower was the scour.

6.4.2 Effect of Tailwater Level on the Bed Scour

Figure 6.9 shows the maximum scour depth at different tailwater levels. The end sill slopes were 1V:2H and 1V:5H and the flow rate was Hurricane Hazel flood. High tailwater level caused less scour compared to the standard TWL while low tailwater level increased the scour depth. Comparing low TWL with high TWL for various end sill slopes, z is 2.04 and $F(z)$ is 0.0212. The probability of obtaining this z by chance is 2.12 percent. The difference in mean scour depths is great and it is not due to chance error. This analysis indicates that tailwater level has significant impact on the scour pattern downstream of the secondary basin: The scour depth was maximum at the minimum TWL (the minimum TWL is limited by critical flow) and decreased with increasing TWL. As shown in Figure 5.36, when tailwater increases, the difference (Δy) between water level on the end sill and TWL decreases. Therefore, the plunging jet has lower potential energy and causes a smaller scour depth. Also the angle of attack is with respect to the bed decreases with Δy and α . At low TWL, because of higher Δy the jet has more energy to dissipate which increases the scour depth.

6.4.3 Effect of End Sill on the Frequency

The fast Fourier transform analysis on the pressure waves on the secondary basin

was performed for the Hurricane Hazel flood and seven different end sill slopes. The first three major frequency components for points 3 and 5 (at 44% and 82% of basin length, respectively) on the secondary basin (see Figure 4.8) are listed in Table 6.1. Since the record length of pressure data was short (15 seconds), the lowest reliable frequency was considered to be 0.5 Hz. The dominant frequency varied in the range of 0.63 to 1.5 Hz. The first three dominant frequencies for end sills 1V:2H and 1V:6H at points 3 and 5 were compared.

It is found that mean frequency component for the case of 1V:2H is $f_1 = 1.13$ Hz and for the case of 1V:6H is $f_6 = 0.916$ with $S_d = 0.205$ m and $z = 1.045$ for the $f_1 - f_6$. The probability of obtaining, by chance, a value of z of at least this magnitude is 14.7 percent. Therefore, the observed difference in frequency component is because of chance error.

In order to non-dimensionalize the frequency values, Strouhal number (N_{ST}) was determined:

$$N_{ST} = \left(\frac{fy_2}{V_2} \right) = \left(\frac{fy_2^2}{Q} \right) \quad (6.14)$$

where f is the frequency (Hz), y_2 (m) and V_2 (m/s) are the depth and the velocity of water on the middle of the secondary stilling basin, respectively. The Strouhal number in the secondary stilling basin for the case of Hazel flood and seven end sill slopes are calculated and listed in Table 6.2. Figure 6.10 shows that the Strouhal number decreases by decreasing the end sill slope, from which the effect of end sill on the frequency of the

pressure waves can be concluded. In the case of high end sill slopes, the volume of the water inside the secondary basin is high; therefore the pressure waves have shorter wave lengths and higher frequencies. The entrance Froude number, velocity (V_1) and water depth (y_1) for the secondary stilling basin are 3.36, 1.87 m/s and 0.03 m, respectively. Nettleton (1983) found N_{ST} in a forced radial jump to be in the range of 0.15 to 0.3 for $F_{r1} = 3$ to 4, compared with this study with about 0.06 to 0.4. Khader (1974) studied the hydraulic jumps with Froude number of approximately 6 and determined the spectral density and autocorrelation functions at various positions on the bed of the jump. His analysis showed a peak in the spectral density function at $(f y_1 / V_1) \approx 0.05$ or $(f y_2 / V_2) \approx 0.2$, where f is the frequency. The N_{ST} numbers obtained from Nettleton and Khader studies are within the range of S_{TL} of this study.

Table 6.1 Frequency data for the Hurricane Hazel flood				
End Sill	Point	First Peak at f (Hz)	Second Peak at f (Hz)	Third Peak at f (Hz)
1:2	3	1.5117	1.2675	1.7091
	5	0.639	0.7792	0.8779
1:1	3	1.3299	1.174	1.5117
	5	0.6338	0.8779	1.0753
1:4	3	0.9247	0.587	0.7792
	5	0.7273	0.6268	0.9247
1:5	3	0.6857	1.5636	1.3662
	5	0.6805	0.7792	0.5351
1:6	3	0.8156	1.1221	1.5117
	5	0.7792	0.6857	0.5818
1:7	3	0.8312	0.6909	0.4883
	5	0.8779	0.7325	0.587
1:8	3	0.8727	1.2112	1.1169
	5	0.8312	0.6857	0.9299

* Point 3 is located at 44% of the secondary basin length

* Point 5 is located at 82% of the secondary basin length

Table 6.2 Strouhal number for the Hurricane Hazel flood				
End Sill	Point	First Peak	Second Peak	Third Peak
1:2	3	0.433	0.363	0.49
	5	0.183	0.223	0.251
1:1	3	0.381	0.336	0.433
	5	0.182	0.251	0.308
1:4	3	0.19	0.12	0.16
	5	0.149	0.129	0.19
1:5	3	0.116	0.265	0.232
	5	0.115	0.132	0.091
1:6	3	0.112	0.154	0.208
	5	0.107	0.094	0.08
1:7	3	0.09	0.075	0.053
	5	0.095	0.079	0.064
1:8	3	0.072	0.101	0.093
	5	0.069	0.057	0.077

* Point 3 is located at 44% of the secondary basin length

* Point 5 is located at 82% of the secondary basin length

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

7.1 General

The effect of a secondary stilling basin with various end sills on the scour depth downstream of spillways at low tailwater level was investigated in this thesis. The Shand Dam was used as a study case. An optimum end sill slope that minimizes the scour depth and moves the location of maximum scour away from the structure was determined. The flow and loading characteristics on the secondary stilling basin were also studied.

7.2 Conclusions on the Experimental Study

Scour depth downstream of the secondary stilling basin was related to the following parameters:

- 1) end sill slope;
- 2) tailwater level;
- 3) flow rate.

Secondary basin with a low transitional end sill (1V:6H) produced a very low amount of scour with practically no danger to the structure. In this arrangement the secondary hydraulic jump was completely contained in the secondary stilling basin. There was no plunging jet and no hydraulic jump on the river bed. For the case of an end sill of 1V:2H, the secondary stilling basin performed like a flip bucket causing the exiting jet

to follow a rising and then a plunging trajectory. A third hydraulic jump occurred on the unprotected bed causing a large scour depth close to the dam which could endanger the structure.

The scour depth was found to be inversely proportional to the tailwater depth. For a low tailwater depth, the difference between tailwater level and water level over the end sill was high. As a result, the exiting jet had a relatively high potential energy which created a high scour depth. On the other hand, for a high tailwater level, the exiting jet had lower potential energy relative to the TWL and produced a low scour depth.

Flow rate had a direct effect on the scour depth. At higher flows, the velocity over the end sill was higher and the exiting jet had more kinetic energy which created a high scour depth.

Pressure on the secondary stilling basin was mainly a function of the initial Froude number in the primary stilling basin and water depth which in this study was taken as the difference between tailwater level and secondary basin floor. Pressure was found to be weakly dependent on the end sill slope.

7.3 Recommendations

As a result of this investigation, the following additional research is suggested:

- i) Experiments with different grain sizes are required to study the effect of particle size on the scour bed.

- ii) More experiments with different end sill slopes are required to generalize the experimental scour depth and pressure values.
- iii) The Effect of gate opening should be tested on both scour and pressure.
- iv) The effect of piers of the spillways on the scour profiles and pressure measurements should be studied.
- v) Scour profiles on the river bed and flow characteristics (pressure and velocity) on the secondary basin should be studied for the cases of diverging and rectangular secondary basins.

REFERENCES

- Affify, A. M. (1992) - "*Air entrainment and scour by inclined circular jets.*" Thesis presented to the Utah State University, Logan, Utah, in partial fulfillment of the degree of Master of Science.
- Afify, Assem M. and Urroz, Gilberto E. (1994) - "Plung-pool scour by inclined jets." *Proc. of the 1994 ASCE National Conference on Hydraulic Engineering*, (2), 1040-1044.
- Bremen, R., Hager and W.H. (1994) - "Expanding stilling basin." *Proc. of the Institution of Civil Engineers, Water Maritime and Energy*, 106(3), 215-228.
- Breusers H. N. C., Raudkivi, A. J. (1991) - "Scouring." *IAHR. Hydraulic structures design manual*, A. A. Balkema/ Rotterdam/ Brookfield.
- Breusers, H. N. C., Shen, H. W. (1977) - "Local scour around cylindrical piers." *Journal of Hydraulic Research*, 15(3), 211-252.
- Breusers, H. N. C. (1967) - "Time scale of two-dimensional local scour." *Proc. 12th IAHR Congress*, Ft. Collins (3), 275-282.
- Buchko, M., Kolkman, P., and Pilarczyk, K. (1987) - "Investigation of local scour in cohesionless sediments using a tunnel." *Proc. of the 22nd IAHR-Congress*, Lausanne, Switzerland, 233-239.
- Catakli, O. (1973) - "A study of scour at the end of stilling basin and use of horizontal beams as energy dissipators." *Proc. of 11th Int. Congress on large dams*, Madrid, Q41 R2; 23-37.
- Chatterjee, S.S., Ghosh, S.N., and Chatterjee, M. (1994) - "Local scour due to submerged horizontal jet." *Journal of Hydraulic Engineering*, 120(8), 973-992.

- Chow, Ven te (1986) - "*Open Channel Hydraulics*." McGraw-Hill Book Co. Inc., New York, 22nd printing.
- De Graauw, A. F. F. and Pilarczyk, K. (1981) - "Model-prototype conformity of local scour in non-cohesive sediments beneath overflow dam." *Proc. of the 19th I.A.H.R.-Congress*, paper no. 2, New Delhi, India, 7-15.
- Dietz, J. W. (1969) - "Kolkbildung im feinem oder leichter Sohlmaterialen bei stromenden Abfluss." *Mitt. Theodor Rehbock Flussbaulab.*, Karlsruhe, Heft 155. 1-119.
- Doehring, Fredrick K. and Abt, Steven R. (1994) - "Drop height influence on outlet scour." *Journal of Hydraulic Engineering* 120(12), 1470-1476.
- Farhoudi, J. and Smith, K.V.H. (1984) - "Local scour profiles downstream of a hydraulic jump." *Journal of Hydraulic Reseach*, 23(4), 343-358.
- Fotherby, Lisa M. (1993) - "Influence of protective material on local scour dimensions." *Proc. of the 1993 National Conference on Hydraulic Engineering*, (2), 1379-1384.
- Ghetti, A. (1954) - "The study of bed erosion at weirs by means of small-scale models" (in Italian). Univ. of Padua, *Inst. of Hydraulics*, Res. Paper no. 167.
- Gosselin, Mark S. and Sheppard, D. Max (1995) - "Time rate of local scour." *Proc. of the 1st International Conference on Water Resources*, (1), 775-779.
- Hartung, W. (1957) - "Die Gesetzmassigkeit der kolkbildung hinter uberstromten Wehren." *Diss. T. U. Braunschweig*.
- Hinze (1959), "Turbulence" McGraw-Hill Book Company, Inc., New York.
- Hoffmans, Gijs J. C. M. and Pilarczyk, Krystian W. (1995) - Local scour downstream of hydraulic structures." *Journal of Hydraulic Engineering*, 121(4), 326-340.
- Katoulas, D. (1967) - "Das Kolkproblem unter Berucksichtigung der Faktoren Ziet und

Geschiebe-mischung in Rahmen der Wildbachverbauung." *Diss. T. U. Braunschweig.*

-Kennedy J. B. and Neville A. M. - "Basic Statistical Methods for Engineers and Scientists." Harper and Row Publishers, New York.

-Khader, M. H. A. and Elango, K. (1974) - "Turbulent Pressure field beneath a hydraulic jump." *Journal of the hydraulic Research*, 12(4), 469-489.

-Konter, Jan L. M. and Jorissen, R. E. (1989) - "Prediction of time development of local scour." *Sediment Transport Modelling: Proc. of the International Symposium*, 456-461.

-Kuti, E. O. and Yen, Chen-lien (1976) - "Scouring of a cohesive soils." *Journal of Hydraulic Research*, 14(3), 195-206.

-Li, Wen-Hsiung (1955) - "Criteria for similitude of scour below hydraulic structures." *Proc. 6th IAHR Congress, The Hague, Paper C4.*

-Lipay, I. E. and Pustovoit, V. F. (1967) - *Proc. 12th Congress. IAHR*, Fort Collins, CO, 362-369.

-Maclean, Alastair G. (1991) - "Bed shear stress and scour over bed-type river intake." *Journal of Hydraulic Engineering*, 117(4), 436-451.

-McCorquodale, J. A. and Mohamed, M. S. (1994) - "Hydraulic jumps on adverse slopes." *Journal of Hydraulic Research*, 32(1), 119-130.

-McCorquodale, J. A. (1986) - "*Encyclopedia of Fluid Mechanics*." Gulf Publishing Company, Houston, Texas, 122-173.

-Mohamed, M. S. and McCorquodale, J. A. (1992) - "Short-term local scour." *Journal of Hydraulic Research*, 30(5), 685-699.

-Mohamed, M.S. (1992) - "*Erosion prediction and control in irrigation canals*." Dissertation presented to the Faculty of Graduate Studies and Research, University of

Windsor, Windsor, Ontario, in partial fulfillment of the Ph.D. degree.

-Narayanan, R. and Schizas, L. S. (1980) - "Force fluctuations on sill of hydraulic jump." *Journal of Hydraulic Division*, ASCE, 106, HY4, 589-599.

-Nettleton, P. C. (1983) - "*The forced radial hydraulic jump.*" Thesis presented to the Faculty of Graduate Studies and Research, University of Windsor, Windsor, Ontario, in partial fulfillment of the degree of Master of Applied Science.

-Niell, C. R. (1967) - "Mean-velocity criterion for scour of coarse uniform bed-material." *Proc. of the 12th Congress of the IAHR*, 3, 46-54.

-Niell, C. R., Yalin, M. S. (1969) - "Quantitative definition of bed movement." *Journal of Hyd. Div.*, Proc. ASCE, 95, no. HY1, 585-588.

-Qadar, A. and Ansari, S. A. (1991) - "Model studies on local scour." *Proc. of the 1991 National Conference on Hydraulic Engineering*, 1120-1126.

-Rajaratnam, N. and Aderibigbe, O. (1993) - "Method for reducing scour below Vertical gates." *Proc. of the Institution of Civil Engineers, Water Maritime and Energy*, 101(2), 73-83.

-Schoklitsch, A. (1935) - "*Staurationverlandung und Kolkabwehr*" Julius Springer, Wien.

-Schoklitsch, A. (1932) - "*Kolkbildung unter Überfallstrahlen.*" *Die Wasserwirtschaft*, p. 341.

-Seaburn, G. E. and Laushey, L. M. (1967) - "Velocities of culvert jets for incipient erosion." *Proc. of the 12th Congress of the IAHR*, 3, 1-16.

-Shafai-Bajestan, M., Sayahi, A., and Albertson, M.L. (1994) - "Scour hole depth downstream of the SAF stilling Basin." *Proc. of the 1994 ASCE National Conference on Hydraulic Engineering*, (2), 1045-1049.

- Shields. A. (1936) - "Anwendung der Aehnlichkeitsmechanik und der Turbulenz Forschung auf die Geschiebebewegung, (Application of Similarity Principles and Turbulence Research to bed-load Movement). *Mitteilungen der Preuss. Versuchsanst für Wasserbau and Schiffbau*, Berlin. No. 26.
- Son, Kwang-IK and Urroz, Gilberto E. (1994) - "Local scour potential for large bed material with shallow tailwater depth." *Proc. of the 1994 ASCE National Conference on Hydraulic Engineering*, (2), 1146-1150
- Stevens, M. A. and Simons, D. B. (1971) - "Stability analysis for coarse granular material." Chapter 17, *River Mechanics*, v. 1, edited and published by H. W. Shen, Fort Collins, Colorado.
- Tse, W.L. (1977) - "A study of scour at culvert outlets." *Thesis presented to the University of New Brunswick, Fredericton, New Brunswick, in partial fulfillment of the degree of Master of science.*
- United States Department of the Interior Bureau of Reclamation, 1974, "*Design of Small Dams.*" Washington.
- Wang, Tsan-Wen and Cheng, Chao-Wen (1990) - "Maximum scour below dams caused by over-fall flow." *Proc. of the 1990 National Conference on Hydraulic Engineering*, (1), 275-280.
- Vasiliev, O. F. and Bukreyev, V. I. (1967) - "Statistical characteristics of pressure fluctuations in the region of hydraulic jump." *Proc. of the 12th Congress of IAHR*, (2)
- Veronese, A. (1937) - "*Erosion de fond en aval d'une de'charge.*" Univ. de Padova.
- Zheng, Yifan (1991) - "New approach to local scour depth estimation under a horizontal jet or free water fall." *Proc. of National Conference on Hydraulic Engineering*, 650-655.

APPENDIX A
TABLES OF DATA

Scour Measurement (cm)								
<i>Flood= 1:100 yr ; End sill= 1:6 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	70	74	90	105
5	0	-2.03	-0.84	-0.81	-0.41	-0.15	0.25	0
10	-1.45	-3.07	-2.06	-2.21	-2.16	-1.5	-0.81	0
20	-0.58	-2.44	-2.44	-3.3	-3.81	-3.89	-1.88	-1.6
21	-0.53	-2.36	-2.29	-3.23	-3.89	-3.94	-1.91	-1.68
30	0.79	0.53	-0.61	-1.4	-2.72	-3.18	-2.11	-1.65
40	0.66	0.79	0.48	0.36	-0.51	-1.04	-1.5	-0.89
50	0.28	0.25	-0.1	0.89	0.46	0.36	-0.81	-0.08

Table A-1

Scour Measurement (cm)								
<i>Flood= 1:500 yr ; End sill= 1:6 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	70	74	90	105
5	0	-2.11	-1.07	-0.3	-0.08	-0.03	0.38	0
10	-1.27	-3.53	-1.93	-1.4	-1.7	-1.45	-0.76	0
20	0.08	-3	-2.95	-3.38	-4.19	-3.78	-2.62	-1.07
27	1.37	-1.65	-2.49	-3.25	-4.37	-4.39	-2.79	-1.3
30	1.6	-0.79	-1.88	-2.97	-4.37	-4.45	-2.72	-1.19
40	1.32	1.65	0	-1.22	-2.64	-3.02	-2.08	-0.76
50	0.69	0.66	1.27	0.61	-0.74	-1.22	-1.65	-0.46

Table A-2

Scour Measurement (cm)								
<i>Flood= Hazel ; End sill= 1:6 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	51	70	90	105
5	0	-3.81	-1.32	-0.2	-0.33	0.08	0.43	0
10	-3.38	-5.64	-2.29	-1.57	-1.45	-1.12	-0.36	0
20	-2.31	-5.31	-4.65	-3.81	-4.65	-3.68	-2.64	-2.16
29	-1.52	-4.83	-5.21	-4.72	-5.56	-4.9	-3.91	-2.77
30	-1.5	-4.7	-5.05	-4.7	-5.69	-4.8	-3.86	-2.69
40	-0.03	-3.28	-4.14	-3.91	-4.85	-4.34	-4.06	-1.98
50	1.19	-1.68	-2.67	-2.54	-3.15	-3.23	-3.76	-1.42

Table A-3

Scour Measurement (cm)								
<i>Flood= 1:10,000 yr ; End sill= 1:6 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	57	70	90	105
5	0	-4.6	-1.55	-0.38	-0.28	-0.2	0.33	0
10	-3.84	-5.89	-2.9	-1.57	-4.5	-1.57	-0.08	0
20	-2.59	-5.92	-5.08	-4.22	-4.8	-3.84	-2.31	-2.57
30	-2.06	-5.54	-5.94	-5.05	-6.63	-5.46	-4.09	-2.87
34	-1.73	-5.28	-5.87	-4.8	-7.09	-5.97	-4.39	-2.11
40	-0.86	-4.55	-5.31	-4.78	-6.83	-5.94	-4.62	-2.13
50	0.3	-3.12	-3.99	-3	-5.69	-5.31	-4.67	-1.55

Table A-4

Scour Measurement (cm)								
Flood= 1:100 yr ; End sill= 1:5 ; Standard T.W.L.								
x(cm)	y(cm)							
	0	9	10	20	40	70	90	105
5	0	-1.88	-2.03	-1.6	-1.47	-0.94	0.05	0
10	-2.77	-3.33	-3.48	-2.41	-3.12	-3.2	-1.5	0
16.5	-2.31	-5.26	-5.28	-3.25	-4.67	-5	-3.05	-2.46
20	-2.18	-4.8	-4.6	-3.12	-4.67	-5.38	-3.38	-2.84
30	-0.69	-2.16	-2.01	-1.52	-3.38	-4.55	-3.12	-3.05
40	0.81	0.48	0.51	-0.08	-0.76	-2.08	-1.85	-1.96
50	-0.69	-0.84	-0.53	0.28	0.25	-0.28	-0.76	-0.66

Table A-5

Scour Measurement (cm)								
Flood= 1:500 yr ; End sill= 1:5 ; Standard T.W.L.								
x(cm)	y(cm)							
	0	10	20	40	69	70	90	105
5	0	-2.08	-1.17	-1.14	-0.94	-0.86	-0.28	0
10	-3.1	-4.45	-2.41	-3.2	-2.77	-2.74	-1.85	0
20	-2.13	-5.92	-4.17	-5.69	-6.12	-6.1	-4.17	-3.35
26	-1.37	-5.11	-4.09	-5.77	-6.2	-6.22	-4.24	-2.9
30	-0.56	-4.22	-3.45	-5.11	-5.92	-5.94	-4.27	-2.36
40	1.45	-1.32	-1.52	-3.45	-4.8	-4.62	-3.3	-1.6
50	0.15	1.17	0.1	-0.84	-2.67	-2.51	-1.98	-0.99

Table A-6

Scour Measurement (cm)								
<i>Flood= Hazel ; End sill= 1:5 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	11	20	40	70	90	105
5	0	-1.98	-1.98	-1.04	-0.56	-0.23	-0.2	0
10	-3.38	-4.55	-4.9	-2.57	-2.82	-2.34	-1.47	0
20	-2.62	-6.3	-6.45	-4.09	-5.03	-5.36	-3.48	-3.66
21	-2.44	-6.48	-6.53	-4.34	-5.21	-5.46	-3.58	-3.86
30	-1.02	-5.49	-5.69	-4.01	-5.54	-5.87	-3.61	-2.82
40	0.2	-3.02	-3	-2.06	-3.78	-4.45	-2.82	-1.45
50	1.3	0.05	0.08	0.1	-1.68	-2.41	-1.63	-0.46

Table A-7

Scour Measurement (cm)								
<i>Flood= 1:10,000 yr ; End sill= 1:5 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	58	70	90	105
5	0	-3.3	-2.08	-0.79	-0.61	-0.36	-0.05	0
10	-5.11	-6.25	-3.3	-2.54	-2.72	-2.9	-1.24	0
20	-4.85	-8.23	-6.02	-5.99	-6.53	-5.79	-3.99	-3.66
30	-4.14	-8.2	-6.81	-6.93	-8.08	-7.21	-4.67	-3.28
36	-3.53	-7.54	-6.05	-6.88	-8.43	-7.62	-4.39	-2.24
40	-2.9	-6.78	-5.59	-6.45	-7.87	-7.11	-4.24	-1.91
50	-1.24	-3.89	-3.63	-4.5	-6.15	-5.61	-3.05	-1.47

Table A-8

Scour Measurement (cm)								
Flood= Hazel ; End sill= 1:5 ; Low T.W.L								
x(cm)	y(cm)							
	0	10	20	40	62	70	90	105
5	0	-4.75	-2.39	-2.39	-1.6	-1.96	-1.37	0
10	-5.11	-6.43	-4.24	-4.42	-4.75	-3.91	-2.69	0
20	-5.28	-7.98	-6.4	-7.9	-8.84	-7.67	-6.35	-4.24
30	-5.66	-8.18	-6.99	-9.27	-9.78	-9.58	-7.32	-5.36
33	-5.11	-7.87	-6.83	-9.14	-9.86	-9.5	-7.47	-4.9
40	-3.99	-6.73	-6.4	-9.04	-9.27	-9.12	-6.91	-4.34
50	-2.34	-4.57	-5.11	-7.49	-7.37	-7.47	-5.59	-3.73

Table A-9

Scour Measurement (cm)								
Flood= Hazel ; End sill= 1:5 ; High T.W.L								
x(cm)	y(cm)							
	0	10	20	40	64	70	90	105
5	0	-1.63	0.43	0.71	1.7	1.63	1.85	0
10	-2.39	-3.23	-0.81	-1.04	-0.05	0.2	0.84	0
20	-0.81	-3.73	-2.39	-3.58	-3.33	-2.08	-1.3	-1.24
30	0.3	-2.59	-2.49	-3.78	-4.93	-3.96	-1.98	-1.09
32	0.36	-2.67	-2.46	-3.48	-4.55	-3.91	-2.18	-0.89
40	1.6	-0.3	-0.66	-2.24	-3.91	-3.71	-1.35	-0.97
50	2.36	2.36	1.7	0.25	-2.34	-2.01	0.05	-1.73

Table A-10

Scour Measurement (cm)								
<i>Flood= 1:100 yr ; End sill= 1:2 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	70	72	90	105
5	0	-9.58	-6.88	-6.6	-9.3	-9.17	-7.75	0
10	-11.73	-12.01	-8	-7.95	-10.19	-10.08	-9.07	0
20	-13.13	-12.8	-10.46	-11.76	-13.72	-13.44	-11.91	-10.34
29	-10.19	-15.47	-11.81	-14.43	-16.28	-16.23	-14.78	-12.98
30	-10.39	-15.11	-11.94	-14.05	-16.08	-16.21	-14.83	-12.95
40	-7.04	-9.37	-8.2	-11.89	-11.73	-11.99	-11.23	-11.68
50	-3.18	-3.66	-3.61	-7.85	-6.96	-7.16	-6.3	-7.32

Table A-11

Scour Measurement (cm)								
<i>Flood= 1:500 yr ; End sill= 1:2 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	70	78	90	105
5	0	-10.29	-8.38	-7.59	-8.89	-8.86	-8.1	0
10	-12.12	-12.78	-9.78	-8.64	-9.88	-9.78	-9.37	0
20	-14.38	-13.67	-11.25	-11.91	-13.31	-13.06	-12.55	-11.15
30	-13.16	-16.41	-13.97	-15.47	-15.62	-15.37	-14.58	-13.41
34	-11.63	-15.21	-13.94	-15.54	-15.95	-16.51	-14.81	-13.72
40	-9.02	-12.78	-12.04	-14.15	-14.43	-14.53	-13.74	-12.98
50	-3.81	-6.2	-7.32	-10.19	-10.46	-10.64	-9.47	-9.58

Table A-12

Scour Measurement								
<i>Flood= Hazel ; End sill= 1:2 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	55	70	90	105
5	0	-11.84	-9.22	-8.69	-8.84	-8.99	-8.81	0
10	-14.91	-14	-10.49	-9.91	-9.25	-9.86	-10.11	0
20	-16.33	-15.7	-11.79	-11.46	-12.5	-13.77	-13.61	-14.05
30	-16.23	-17.09	-13.61	-15.57	-17.07	-17.09	-16.54	-16.03
40	-14.07	-15.54	-13.31	-17.04	-18.01	-17.65	-16.38	-14.73
43	-13.64	-13.72	-13.56	-16.97	-18.03	-17.35	-15.62	-14.99
50	-11.86	-12.42	-12.8	-16.41	-17.17	-17.42	-15.21	-13.41

Table A-13

Scour Measurement								
<i>Flood= 1:10,000 yr ; End sill= 1:2 ; Standard T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	60	70	90	105
5	0	-12.47	-11.25	-11.33	-11.13	-10.87	-10.8	0
10	-12.37	-14.17	-12.14	-11.56	-12.09	-12.17	-11.89	0
20	-14.71	-14.66	-14.2	-14.96	-15.39	-14.76	-14.38	-13.54
30	-16.05	-18.36	-18.77	-18.06	-18.87	-18.75	-17.7	-17.48
40	-14.17	-17.98	-20.27	-20.5	-21.54	-21.31	-20.17	-19.02
45	-12.65	-16.81	-19.56	-19.74	-21.26	-21.49	-19.18	-17.78
50	-10.24	-15.24	-18.06	-18.06	-21.82	-21.39	-18.24	-16.13

Table A-14

Scour Measurement (cm)								
<i>Flood= Hazel ; End sill= 1:2 ; Low T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	64	70	90	105
5	0	-12.01	-10.92	-10.57	-10.57	-10.62	-14.43	0
10	-13.51	-13.97	-11.81	-11.61	-11.58	-11.38	-17.83	0
20	-16.1	-15.04	-13.79	-14.48	-14.12	-14.63	-17.55	-13.44
30	-15.42	-18.75	-18.06	-18.54	-18.95	-19.48	-13.82	-17.22
36	-14.07	-18.54	-19.05	-20.09	-20.7	-20.68	-18.06	-17.15
40	-12.75	-17.15	-17.75	-19.28	-20.07	-20.27	-10.97	-16.61
50	-8.99	-12.4	-14.68	-15.98	-16.61	-16.05	-9.4	-13.56

Table A-15

Scour Measurement (cm)								
<i>Flood= Hazel ; End sill= 1:2 ; High T.W.L.</i>								
x(cm)	y(cm)							
	0	10	20	40	46	70	90	105
5	0	-5.36	-5.28	-4.47	-4.09	-3.61	-3.63	0
10	-5.08	-6.22	-4.78	-5.16	-4.9	-3.91	-4.24	0
20	-6.76	-8.76	-9.37	-9.3	-9.27	-7.72	-7.67	-7.21
27	-7.04	-9.42	-10.44	-10.72	-11	-9.35	-8.51	-7.37
30	-6.78	-9.53	-10.52	-10.69	-10.72	-9.55	-8.41	-7.32
40	-5.21	-8.28	-9.91	-9.86	-10.31	-9.17	-7.77	-5.99
50	-2.74	-5.69	-7.77	-7.54	-8.15	-7.85	-6.1	-3.86

Table A-16

End sill slope = 1:5 ; d = 0.5 D				
Location (y)	Velocity measurements over the S.S.B. (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.8	0.84	1.1	1.11
Bay 4	0.56	0.63	1.1	1.12
Bay 3	0.62	0.67	0.98	0.99
Bay 2	0.94	0.98	1.03	1.1
Bay 1	0.67	0.72	1.13	1.17
Side 1	0.61	0.66	0.77	0.88

Table A-17

End sill slope = 1:5 ; d = 0.2 D				
Location (y)	Velocity measurements over the S.S.B. (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.31	0.53	0.53	0.69
Bay 4	0.52	0.6	0.68	0.8
Bay 3	0.34	0.43	0.53	0.67
Bay 2	0.7	0.78	0.85	0.95
Bay 1	0.4	0.44	0.71	0.71
Side 1	0.37	0.41	0.52	0.64

Table A-18

End sill slope = 1:6 ; d = 0.5 D				
Location (y)	Velocity measurements over the S.S.B. (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.67	0.74	0.88	0.95
Bay 4	0.45	0.69	0.76	0.87
Bay 3	0.3	0.58	0.66	0.85
Bay 2	0.94	1	1.04	1.18
Bay 1	0.75	0.99	1.05	1.06
Side 1	0.58	0.61	0.74	0.97

Table A-19

End sill slope = 1:6 ; d = 0.2 D				
Location (y)	Velocity measurements over the S.S.B. (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.46	0.58	0.63	0.66
Bay 4	0.54	0.62	0.67	0.69
Bay 3	0.3	0.44	0.48	0.54
Bay 2	0.83	0.9	0.96	1
Bay 1	0.45	0.61	0.76	0.84
Side 1	0.43	0.48	0.6	0.77

Table A-20

End sill slope = 1:2 ; d = 0.5 D				
Location (y)	Velocity measurements over the S.S.B. (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.57	0.62	0.72	0.76
Bay 4	0.44	0.55	0.67	0.69
Bay 3	0.39	0.46	0.48	0.5
Bay 2	0.48	0.56	0.7	0.74
Bay 1	0.38	0.44	0.5	0.56
Side 1	0.45	0.58	0.63	0.67

Table A-21

End sill slope = 1:2 ; d = 0.8 D				
Location (y)	Velocity measurements over the S.S.B. (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.74	1.05	1.09	1.18
Bay 4	0.65	0.91	0.99	1.16
Bay 3	0.54	0.66	0.83	0.98
Bay 2	0.91	1.1	1.15	1.17
Bay 1	0.59	0.74	0.82	1.04
Side 1	0.5	0.53	0.63	0.95

Table A-22

End sill slope = 1:5 ; d = 0.2 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.47	0.5	0.53	0.62
Bay 4	0.49	0.53	0.61	0.69
Bay 3	0.51	0.57	0.61	0.73
Bay 2	0.59	0.69	0.78	0.85
Bay 1	0.56	0.6	0.66	0.77
Side 1	0.51	0.57	0.63	0.73

Table A-23

End sill slope = 1:5 ; d = 0.5 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.45	0.47	0.49	0.52
Bay 4	0.42	0.46	0.51	0.58
Bay 3	0.39	0.42	0.48	0.5
Bay 2	0.48	0.55	0.62	0.65
Bay 1	0.4	0.45	0.47	0.55
Side 1	0.49	0.52	0.53	0.58

Table A-24

End sill slope = 1:5 ; d = 0.8 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.38	0.4	0.43	0.57
Bay 4	0.34	0.34	0.44	0.55
Bay 3	0.39	0.42	0.48	0.53
Bay 2	0.42	0.55	0.59	0.65
Bay 1	0.4	0.45	0.48	0.51
Side 1	0.46	0.48	0.51	0.6

Table A-25

End sill slope = 1:6 ; d = 0.2 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.44	0.48	0.56	0.55
Bay 4	0.41	0.43	0.48	0.51
Bay 3	0.44	0.48	0.61	0.66
Bay 2	0.54	0.68	0.81	0.9
Bay 1	0.44	0.51	0.67	0.71
Side 1	0.42	0.56	0.72	0.76

Table A-26

End sill slope = 1:6 ; d = 0.5 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.4	0.44	0.48	0.5
Bay 4	0.37	0.4	0.44	0.47
Bay 3	0.4	0.46	0.53	0.58
Bay 2	0.43	0.55	0.65	0.73
Bay 1	0.41	0.44	0.47	0.56
Side 1	0.45	0.59	0.62	0.67

Table A-27

End sill slope = 1:6 ; d = 0.8 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.38	0.41	0.43	0.48
Bay 4	0.3	0.32	0.37	0.4
Bay 3	0.38	0.41	0.45	0.54
Bay 2	0.41	0.45	0.52	0.64
Bay 1	0.35	0.41	0.47	0.58
Side 1	0.52	0.55	0.56	0.66

Table A-28

End sill slope = 1:2 ; d = 0.2 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.64	0.66	0.7	0.72
Bay 4	0.66	0.69	0.75	0.86
Bay 3	0.6	0.65	0.67	0.8
Bay 2	0.59	0.65	0.72	0.94
Bay 1	0.53	0.56	0.59	0.78
Side 1	0.43	0.53	0.59	0.76

Table A-29

End sill slope = 1:2 ; d = 0.5 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.5	0.56	0.61	0.66
Bay 4	0.58	0.62	0.65	0.67
Bay 3	0.62	0.66	0.7	0.75
Bay 2	0.55	0.58	0.68	0.76
Bay 1	0.44	0.47	0.53	0.63
Side 1	0.46	0.48	0.56	0.71

Table A-30

End sill slope = 1:2 ; d = 0.8 D				
Location (y)	Velocity measurements over the end sill (m / sec)			
	1:100 yr	1:500 yr	Hazel	1:10,000 yr
Side 4	0.49	0.56	0.59	0.62
Bay 4	0.54	0.6	0.63	0.66
Bay 3	0.51	0.54	0.59	0.63
Bay 2	0.55	0.58	0.63	0.67
Bay 1	0.48	0.53	0.56	0.59
Side 1	0.52	0.57	0.61	0.64

Table A-31

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:10 yr & End sill= 1:5</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.034	0.053	-0.035	0.018	-0.026	-0.063
point 6	0.034	1	0.019	-0.096	-0.166	-0.275	-0.131
point 5	0.053	0.019	1	0.648	0.029	-0.06	0.127
point 4	-0.035	-0.096	0.648	1	0.015	-0.175	-0.123
point 3	0.018	-0.166	0.029	0.015	1	0.222	0.054
point 2	-0.026	-0.275	-0.06	-0.175	0.222	1	0.569
point 1	-0.063	-0.131	0.127	-0.123	0.054	0.569	1

Table A-32

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:100 yr & End sill= 1:5</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.183	0.039	0.04	0.093	-0.055	-0.024
point 6	0.183	1	0.298	-0.014	0.145	0.302	0.229
point 5	0.039	0.298	1	0.019	0.009	-0.25	-0.166
point 4	0.04	-0.014	0.019	1	0.236	0.173	-0.153
point 3	0.093	0.145	0.009	0.236	1	0.221	0.051
point 2	-0.055	0.302	-0.25	0.173	0.221	1	0.373
point 1	-0.024	0.229	-0.166	-0.153	0.051	0.373	1

Table A-33

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= Hazel & End sill= 1:5</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.2	0.052	-0.07	-0.066	0.107	0.056
point 6	0.2	1	0.085	-0.089	-0.026	0.11	0.002
point 5	0.052	0.085	1	0.265	0.093	-0.199	-0.213
point 4	-0.07	-0.089	0.265	1	0.349	0.059	-0.109
point 3	-0.066	-0.026	0.093	0.349	1	0.192	0.048
point 2	0.107	0.11	-0.199	0.059	0.192	1	0.653
point 1	0.056	0.002	-0.213	-0.109	0.048	0.653	1

Table A-34

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:10 yr & End sill= 1:6</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.259	0.155	0.11	-0.047	0.149	-0.014
point 6	0.259	1	0.298	-0.032	-0.009	-0.001	0.044
point 5	0.155	0.298	1	-0.08	-0.06	-0.103	0.112
point 4	0.11	-0.032	-0.08	1	0.153	0.221	-0.051
point 3	-0.047	-0.009	-0.06	0.153	1	0.301	0.065
point 2	0.149	-0.001	-0.103	0.221	0.301	1	0.401
point 1	-0.014	0.044	0.112	-0.051	0.065	0.401	1

Table A-35

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:100 yr & End sill= 1:6</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.129	0.024	0.26	0.028	0.316	0.008
point 6	0.129	1	0.482	0.2	-0.087	-0.1	-0.106
point 5	0.024	0.482	1	0.183	-0.041	-0.195	-0.135
point 4	0.26	0.2	0.183	1	-0.004	0.251	-0.167
point 3	0.028	-0.087	-0.041	-0.004	1	0.272	0.087
point 2	0.316	-0.1	-0.195	0.251	0.272	1	0.429
point 1	0.008	-0.106	-0.135	-0.167	0.087	0.429	1

Table A-36

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= Hazel & End sill= 1:6</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.007	-0.067	0.292	0.061	0.034	0.09
point 6	0.007	1	-0.1	0.107	0.216	0.201	0.191
point 5	-0.067	-0.1	1	0.304	0.187	-0.095	0.009
point 4	0.292	0.107	0.304	1	0.482	0.039	-0.03
point 3	0.061	0.216	0.187	0.482	1	0.079	0.142
point 2	0.034	0.201	-0.095	0.039	0.079	1	0.519
point 1	0.09	0.191	0.009	-0.03	0.142	0.519	1

Table A-37

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:10 yr & End sill= 1:7</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.101	0.046	0.025	-0.046	0.006	0.014
point 6	0.101	1	0.353	-0.166	-0.084	0.018	0.078
point 5	0.046	0.353	1	-0.006	0.098	-0.012	0.16
point 4	0.025	-0.166	-0.006	1	0.136	0.067	-0.036
point 3	-0.046	-0.084	0.098	0.136	1	0.524	-0.015
point 2	0.006	0.018	-0.012	0.067	0.524	1	0.39
point 1	0.014	0.078	0.16	-0.036	-0.015	0.39	1

Table A-38

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:100 yr & End sill= 1:7</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.159	-0.01	-0.03	-0.015	0.112	0.152
point 6	0.159	1	0.481	-0.127	-0.1	0.029	0.25
point 5	-0.01	0.481	1	0.044	0.272	0.218	0.032
point 4	-0.03	-0.127	0.044	1	0.33	0.254	-0.061
point 3	-0.015	-0.1	0.272	0.33	1	0.745	0.173
point 2	0.112	0.029	0.218	0.254	0.745	1	0.562
point 1	0.152	0.25	0.032	-0.061	0.173	0.562	1

Table A-39

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= Hazel & End sill= 1:7</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	-0.103	-0.186	0.099	0.048	0.062	0.075
point 6	-0.103	1	0.028	-0.257	-0.287	0.093	0.085
point 5	-0.186	0.028	1	0.248	0.34	0.019	-0.188
point 4	0.099	-0.257	0.248	1	0.508	0.247	0.204
point 3	0.048	-0.287	0.34	0.508	1	0.16	0.223
point 2	0.062	0.093	0.019	0.247	0.16	1	0.527
point 1	0.075	0.085	-0.188	0.204	0.223	0.527	1

Table A-40

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:10 yr & End sill= 1:8</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.12	-0.056	0.329	0.31	0.107	0.138
point 6	0.12	1	0.453	0.116	-0.017	0.343	0.356
point 5	-0.056	0.453	1	-0.002	-0.115	-0.128	-0.151
point 4	0.329	0.116	-0.002	1	0.615	0.104	0.017
point 3	0.31	-0.017	-0.115	0.615	1	0.389	0.082
point 2	0.107	0.343	-0.128	0.104	0.389	1	0.541
point 1	0.138	0.356	-0.151	0.017	0.082	0.541	1

Table A-41

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:100 yr & End sill= 1:8</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.167	-0.008	0.093	0.04	0.053	0.031
point 6	0.167	1	0.317	-0.137	-0.205	-0.032	-0.026
point 5	-0.008	0.317	1	0.121	0.151	0.4	0.471
point 4	0.093	-0.137	0.121	1	0.472	0.263	0.073
point 3	0.04	-0.205	0.151	0.472	1	0.596	0.307
point 2	0.053	-0.032	0.4	0.263	0.596	1	0.566
point 1	0.031	-0.026	0.471	0.073	0.307	0.566	1

Table A-42

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= Hazel & End sill= 1:8</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.162	-0.134	0.052	0.06	0.116	-0.026
point 6	0.162	1	-0.035	0.13	0.011	-0.094	0.03
point 5	-0.134	-0.035	1	0.375	0.332	0.033	0.058
point 4	0.052	0.13	0.375	1	0.566	0.308	0.126
point 3	0.06	0.011	0.332	0.566	1	0.595	0.216
point 2	0.116	-0.094	0.033	0.308	0.595	1	0.529
point 1	-0.026	0.03	0.058	0.126	0.216	0.529	1

Table A-43

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:10 yr & End sill= 1:4</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	-0.052	-0.002	0.073	-0.132	-0.058	0.002
point 6	-0.052	1	0.327	0.017	-0.015	-0.412	-0.308
point 5	-0.002	0.327	1	0.417	0.117	0.169	0.178
point 4	0.073	0.017	0.417	1	0.051	0.059	0.055
point 3	-0.132	-0.015	0.117	0.051	1	0.44	0.067
point 2	-0.058	-0.412	0.169	0.059	0.44	1	0.488
point 1	0.002	-0.308	0.178	0.055	0.067	0.488	1

Table A-44

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:100 yr & End sill= 1:4</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.176	0.022	0.03	0.147	-0.001	0.039
point 6	0.176	1	0.518	0.307	-0.035	-0.081	0.155
point 5	0.022	0.518	1	0.492	-0.241	0.204	0.047
point 4	0.03	0.307	0.492	1	0.11	0.192	0.05
point 3	0.147	-0.035	-0.241	0.11	1	0.123	0.096
point 2	-0.001	-0.081	0.204	0.192	0.123	1	0.316
point 1	0.039	0.155	0.047	0.05	0.096	0.316	1

Table A-45

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= Hazel & End sill= 1:4</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.014	-0.049	-0.135	0.037	-0.089	-0.108
point 6	0.014	1	0.146	-0.093	0.007	-0.34	-0.37
point 5	-0.049	0.146	1	0.68	0.429	0.226	0.1
point 4	-0.135	-0.093	0.68	1	0.376	0.372	0.475
point 3	0.037	0.007	0.429	0.376	1	0.696	0.422
point 2	-0.089	-0.34	0.226	0.372	0.696	1	0.813
point 1	-0.108	-0.37	0.1	0.475	0.422	0.813	1

Table A-46

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:10 yr & End sill= 1:1</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.09	-0.049	-0.137	-0.063	-0.064	-0.013
point 6	0.09	1	0.307	-0.12	0.072	-0.328	-0.373
point 5	-0.049	0.307	1	0.633	0.049	-0.412	-0.454
point 4	-0.137	-0.12	0.633	1	0.101	-0.049	-0.341
point 3	-0.063	0.072	0.049	0.101	1	0.164	0.195
point 2	-0.064	-0.328	-0.412	-0.049	0.164	1	0.628
point 1	-0.013	-0.373	-0.454	-0.341	0.195	0.628	1

Table A-47

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:100 yr & End sill= 1:1</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.192	0.042	-0.086	0.176	0.066	0.054
point 6	0.192	1	0.178	-0.379	0.01	-0.373	-0.347
point 5	0.042	0.178	1	0.61	0.016	0.138	-0.141
point 4	-0.086	-0.379	0.61	1	0.092	0.19	0.016
point 3	0.176	0.01	0.016	0.092	1	0.29	0.222
point 2	0.066	-0.373	0.138	0.19	0.29	1	0.733
point 1	0.054	-0.347	-0.141	0.016	0.222	0.733	1

Table A-48

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= Hazel & End sill= 1:1</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.149	0.004	-0.083	-0.013	-0.187	-0.053
point 6	0.149	1	0.576	0.165	0.02	0.159	0.254
point 5	0.004	0.576	1	0.669	-0.015	0.215	0.047
point 4	-0.083	0.165	0.669	1	0.045	0.272	0.162
point 3	-0.013	0.02	-0.015	0.045	1	0.104	0.12
point 2	-0.187	0.159	0.215	0.272	0.104	1	0.53
point 1	-0.053	0.254	0.047	0.162	0.12	0.53	1

Table A-49

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:10 yr & End sill= 1:2</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.205	0.01	-0.153	0.007	-0.029	-0.024
point 6	0.205	1	0.337	0.021	-0.082	0.042	0.165
point 5	0.01	0.337	1	0.38	-0.144	0.141	-0.079
point 4	-0.153	0.021	0.38	1	-0.152	0.03	-0.097
point 3	0.007	-0.082	-0.144	-0.152	1	0.061	0.053
point 2	-0.029	0.042	0.141	0.03	0.061	1	0.695
point 1	-0.024	0.165	-0.079	-0.097	0.053	0.695	1

Table A-50

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= 1:100 yr & End sill= 1:2</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	0.209	0.216	0.088	-0.038	0.08	0.09
point 6	0.209	1	0.442	-0.105	0.059	0.071	0.023
point 5	0.216	0.442	1	0.633	-0.089	0.003	-0.086
point 4	0.088	-0.105	0.633	1	-0.126	0.083	-0.007
point 3	-0.038	0.059	-0.089	-0.126	1	0.122	0.088
point 2	0.08	0.071	0.003	0.083	0.122	1	0.807
point 1	0.09	0.023	-0.086	-0.007	0.088	0.807	1

Table A-51

Longitudinal Correlation Coefficient in S.S.B. based on: <i>Pressure Measurement for Flood= Hazel & End sill= 1:2</i>							
Location	x=40 cm	x=32 cm	x=22 cm	x=17 cm	x=12 cm	x=8 cm	x=4 cm
	point 7	point 6	point 5	point 4	point 3	point 2	point 1
point 7	1	-0.007	0.008	0.018	0.217	0.111	0.063
point 6	-0.007	1	0.714	0.548	0.108	0.408	0.273
point 5	0.008	0.714	1	0.753	0.027	0.424	0.178
point 4	0.018	0.548	0.753	1	0.125	0.607	0.457
point 3	0.217	0.108	0.027	0.125	1	0.222	0.074
point 2	0.111	0.408	0.424	0.607	0.222	1	0.719
point 1	0.063	0.273	0.178	0.457	0.074	0.719	1

Table A-52

Correlation Length (cm)				
for Pressure Measurements on S.S.B. for Point 3:				
Flood:		1:10 yr	1:100 yr	Hazel
End sill 1:1	Longitudinal	5.533	6.353	4.046
	Lateral	28.037	24.218	20.565
End sill 1:2	Longitudinal	0.718	2.721	7.131
	Lateral	24.891	27.22	22.91
End sill 1:4	Longitudinal	5.895	3.189	12.859
	Lateral	26.814	31.67	34.193
End sill 1:5	Longitudinal	3.125	7.563	6.531
	Lateral	26.435	23.418	27.158
End sill 1:6	Longitudinal	5.049	3.595	10.263
	Lateral	27.679	31.789	20.397
End sill 1:7	Longitudinal	6.394	10.256	7.411
	Lateral	33.051	33.455	25.4
End sill 1:8	Longitudinal	9.607	9.051	12.792
	Lateral	21.305	13.304	32.949

Table A-53

Correlation Length (cm)				
for Pressure Measurements on S.S.B. for Point 5:				
Flood:		1:10 yr	1:100 yr	Hazel
End sill 1:1	Longitudinal	10.799	13.097	17.493
	Lateral	25.101	20.217	26.377
End sill 1:2	Longitudinal	12.486	15.361	20.729
	Lateral	30.537	24.536	46.834
End sill 1:4	Longitudinal	13.876	15.13	14.94
	Lateral	34.133	22.215	39.844
End sill 1:5	Longitudinal	11.306	8.097	8.347
	Lateral	31.832	35.253	38.425
End sill 1:6	Longitudinal	8.85	10.984	7.597
	Lateral	32.39	37.73	31.099
End sill 1:7	Longitudinal	10.428	13.277	8.699
	Lateral	41.947	25.621	35.695
End sill 1:8	Longitudinal	9.279	13.516	9.568
	Lateral	39.274	26.721	44.129

Table A-54

APPENDIX B

FIGURES

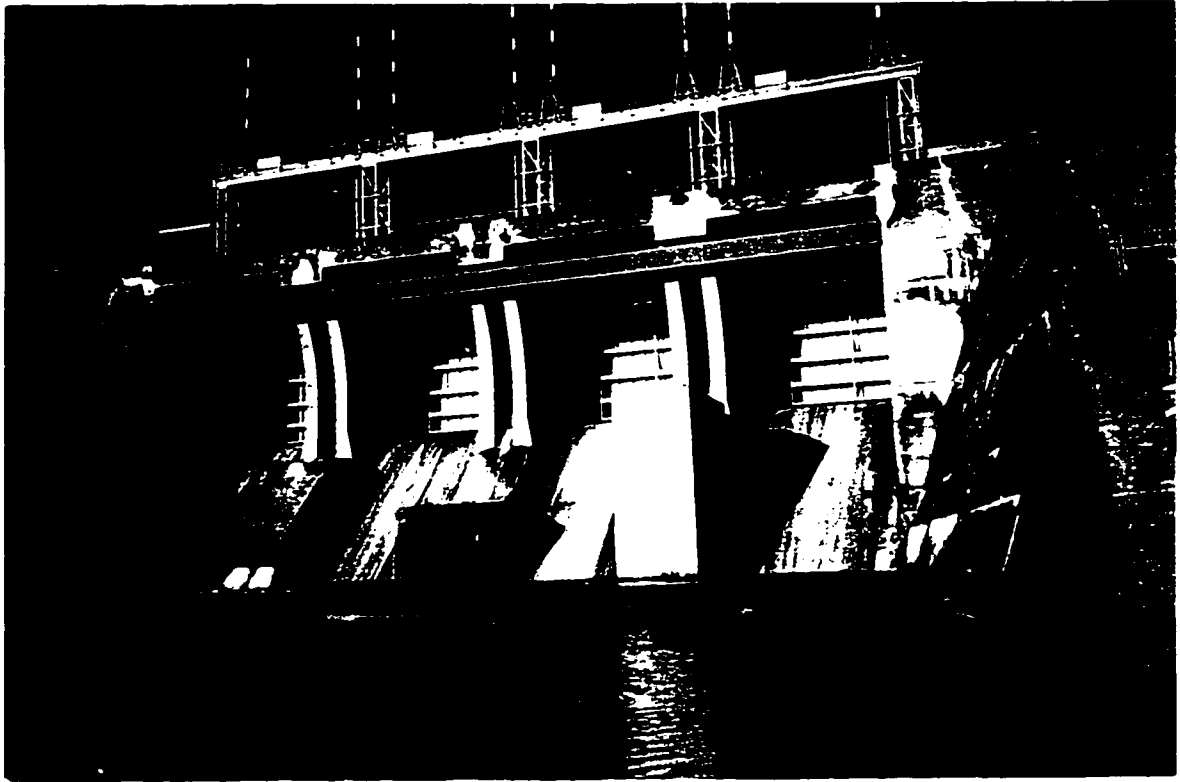


Fig. 1.1 Shand dam front view



Fig. 1.2 Reservoir side of the Shand dam

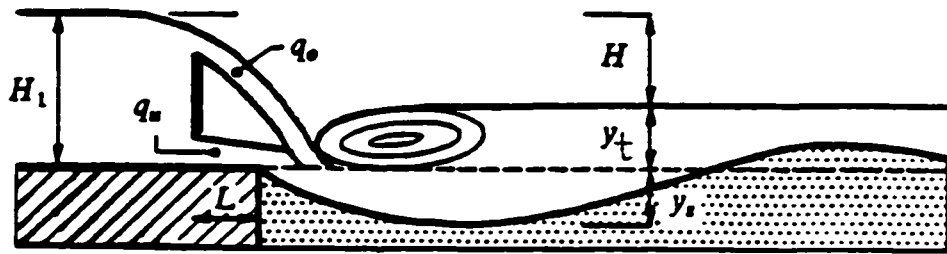


Fig. 2.1 Definition sketch of the flow over or under structures

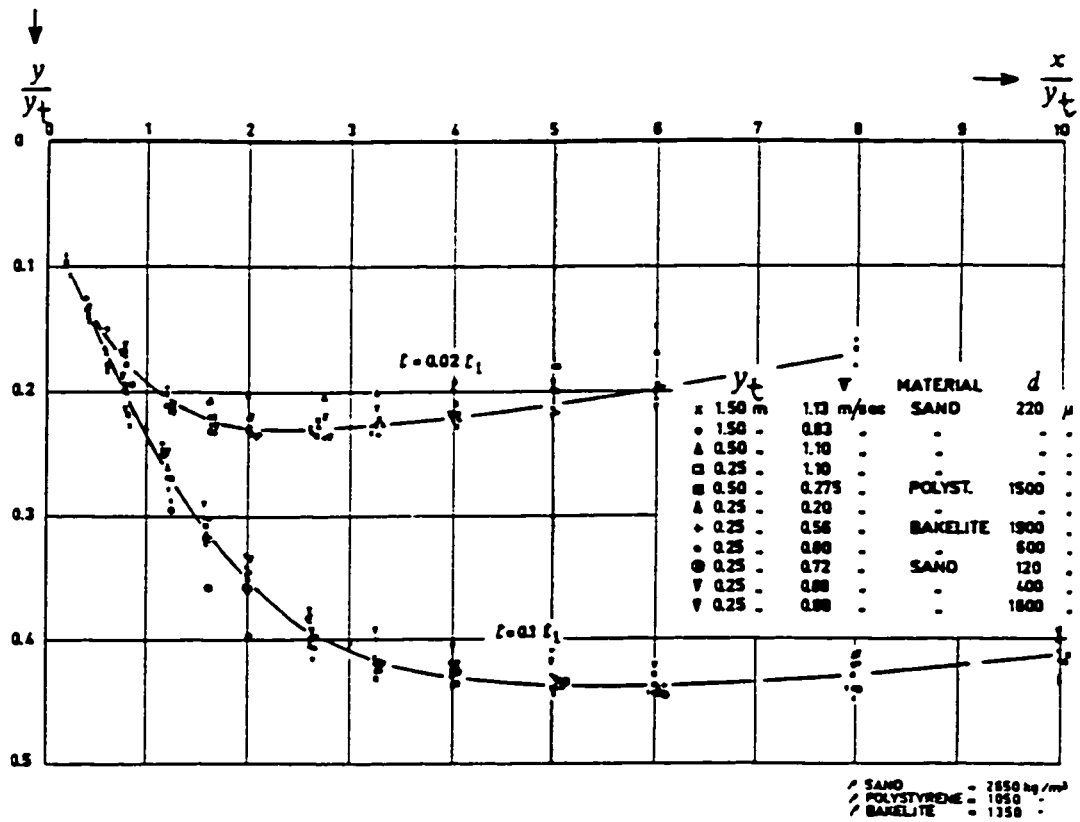


Fig. 2.2 Comparison of scour profiles (Breusers 1966)

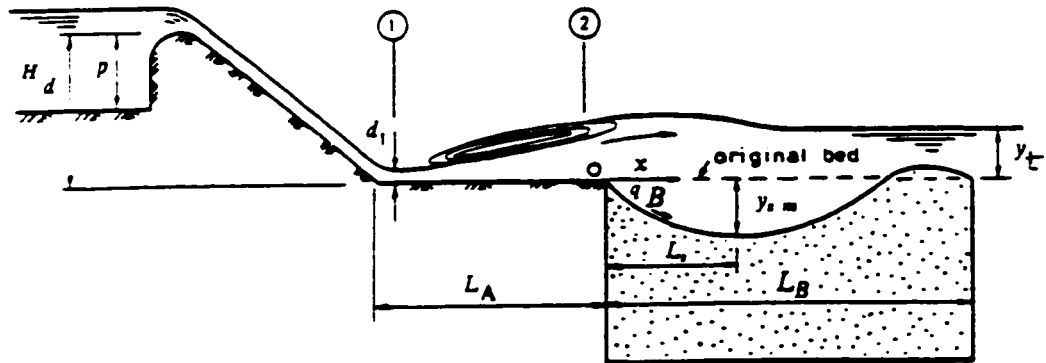


Fig. 2.3 Definition sketch of scour below a spillway

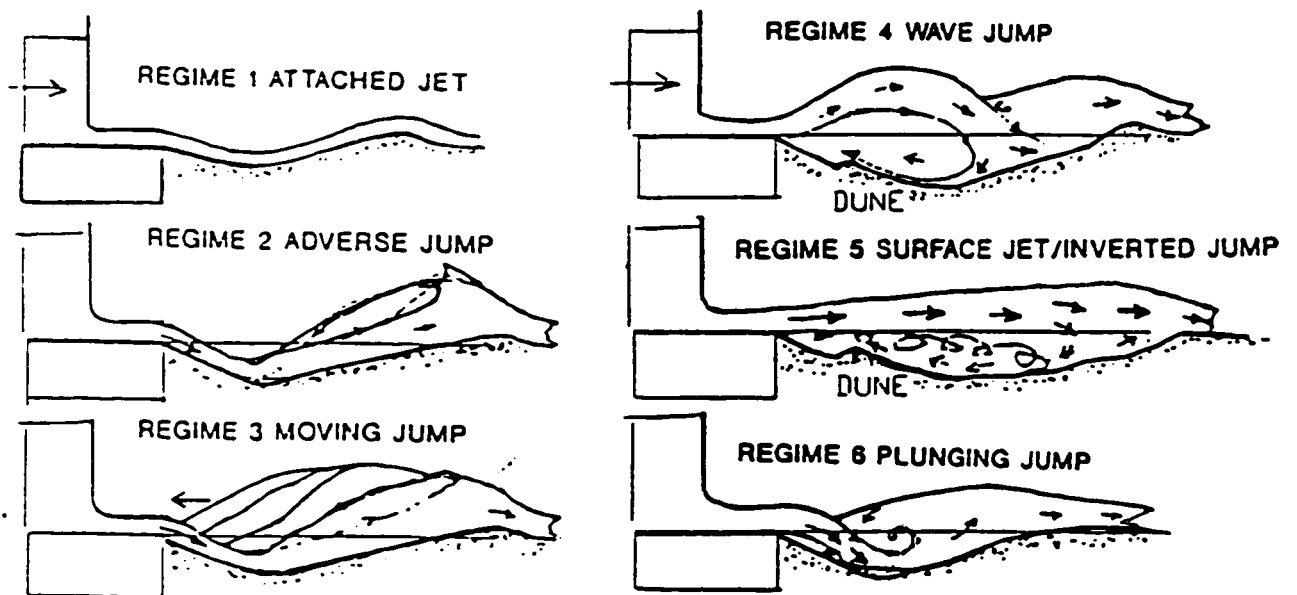


Fig. 2.4 Six flow regimes involved the local scour process (McCorquodale, 1992)

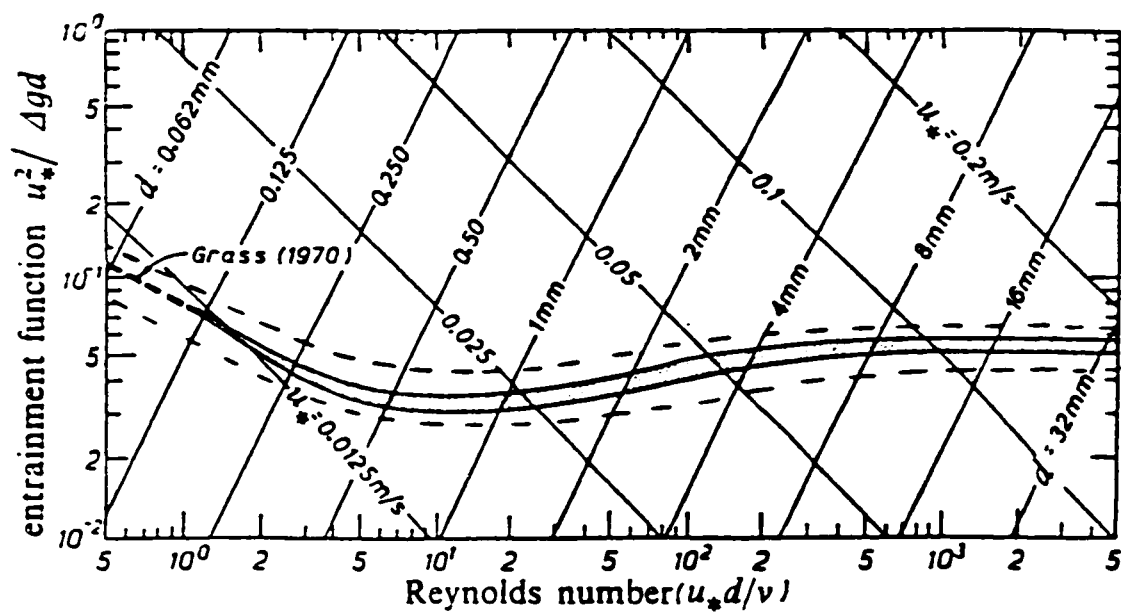


Fig. 2.5 Sediment entrainment as a function of Reynolds number (Shields 1936)

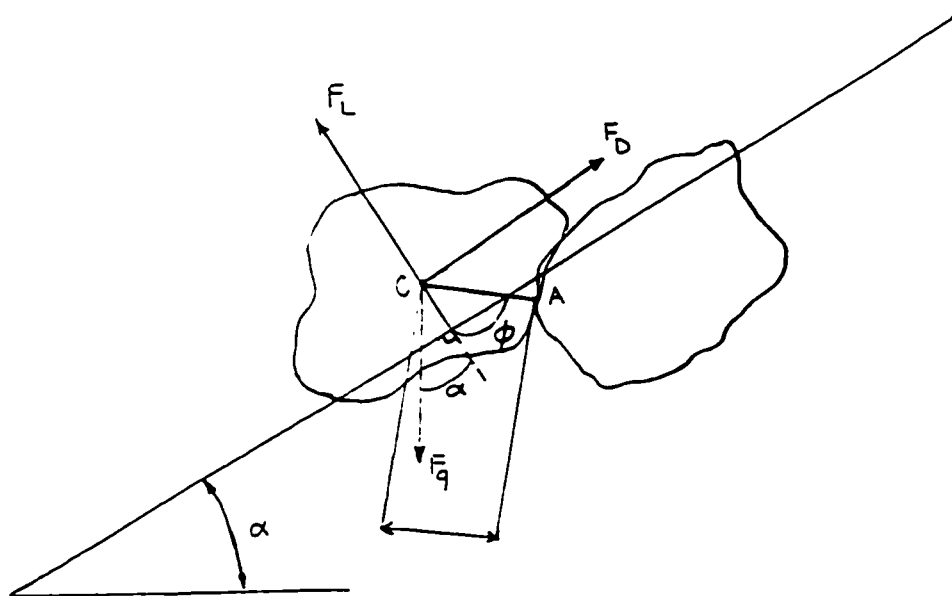


Fig. 2.6 Defining sketch for hydrodynamic forces on a particle (Bormann, 1988)

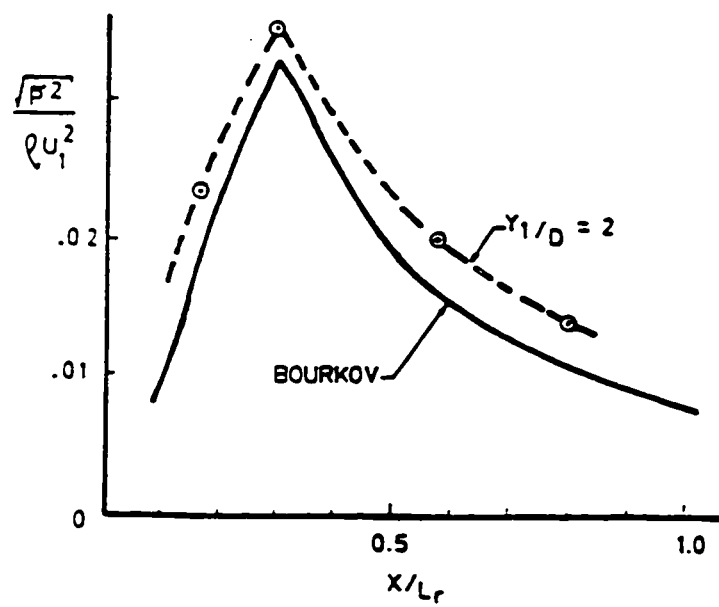


Fig. 2.7 Typical pressure distributions under a hydraulic jump (Wisner, 1967)

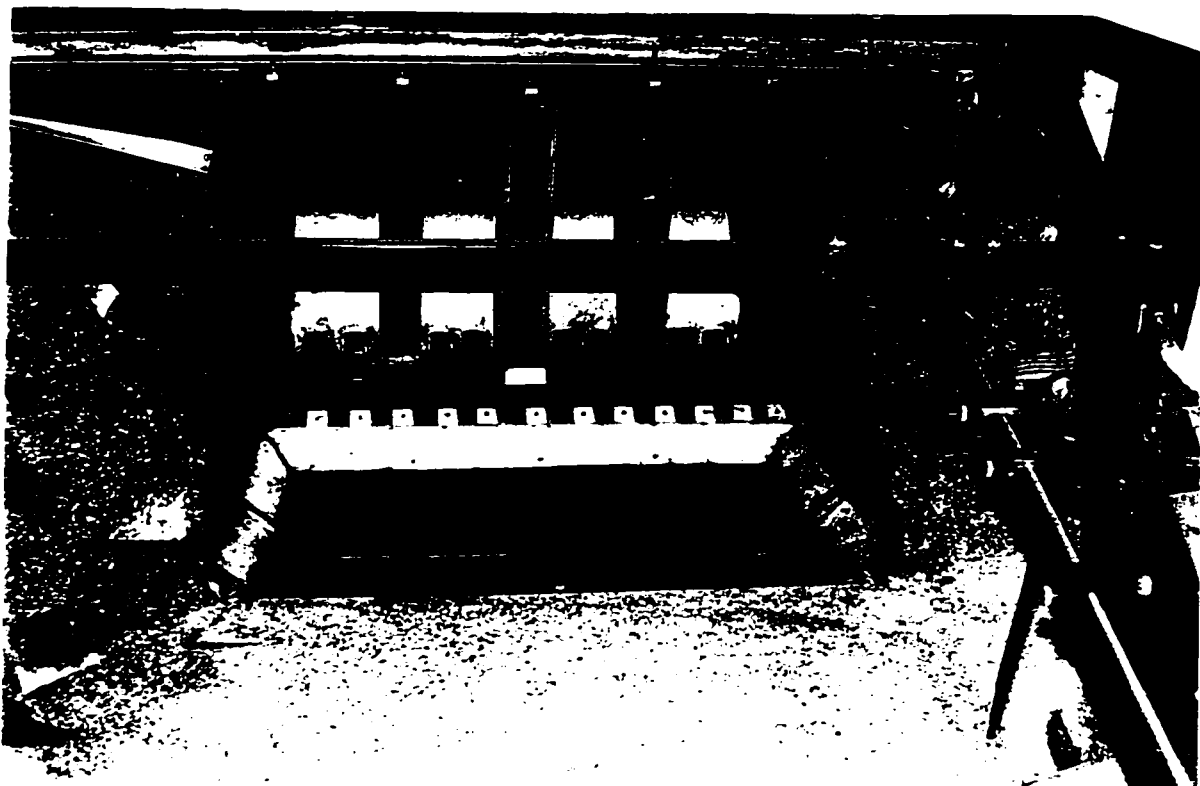


Fig. 4.1 Front view of the Shand dam model

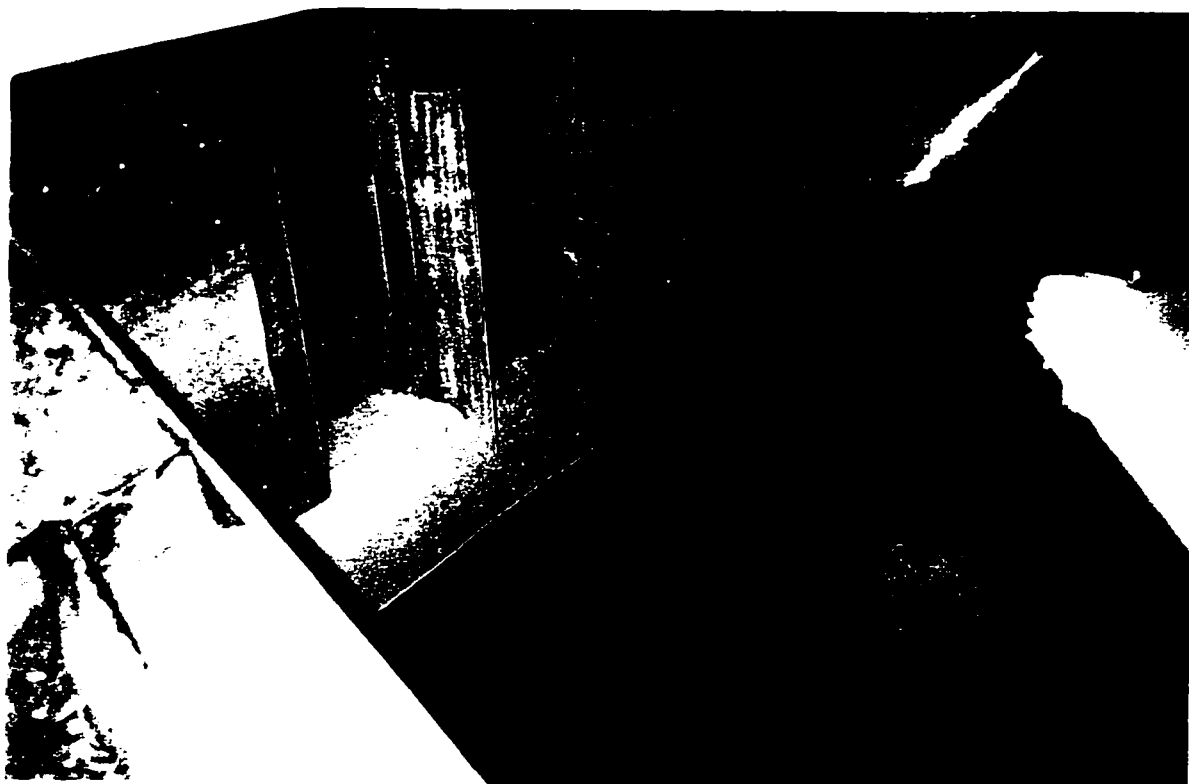
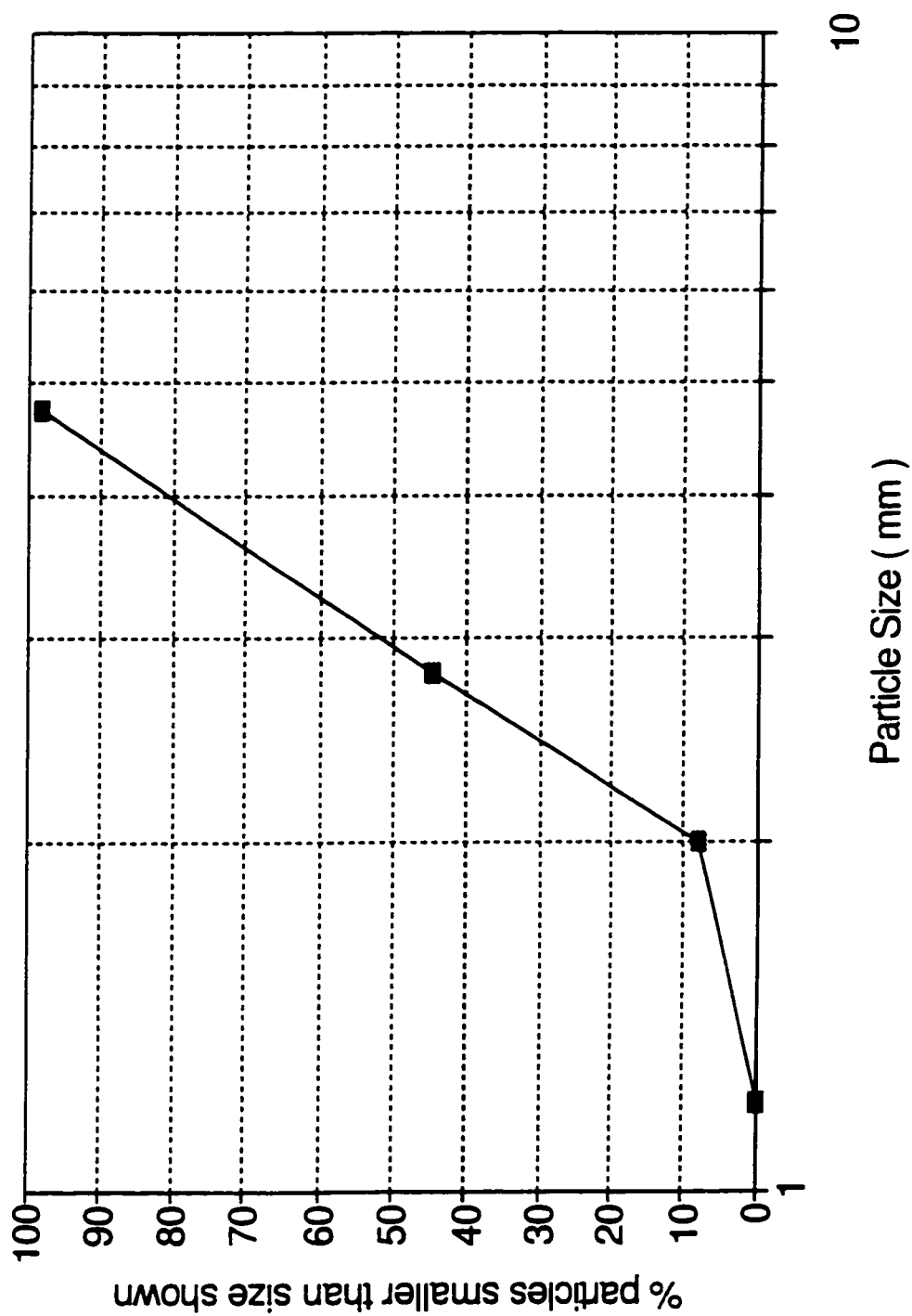


Fig. 4.2 Forebay view of the Shand dam model

Fig. 4.3 Grain Size Distribution
in the Shand Dam model



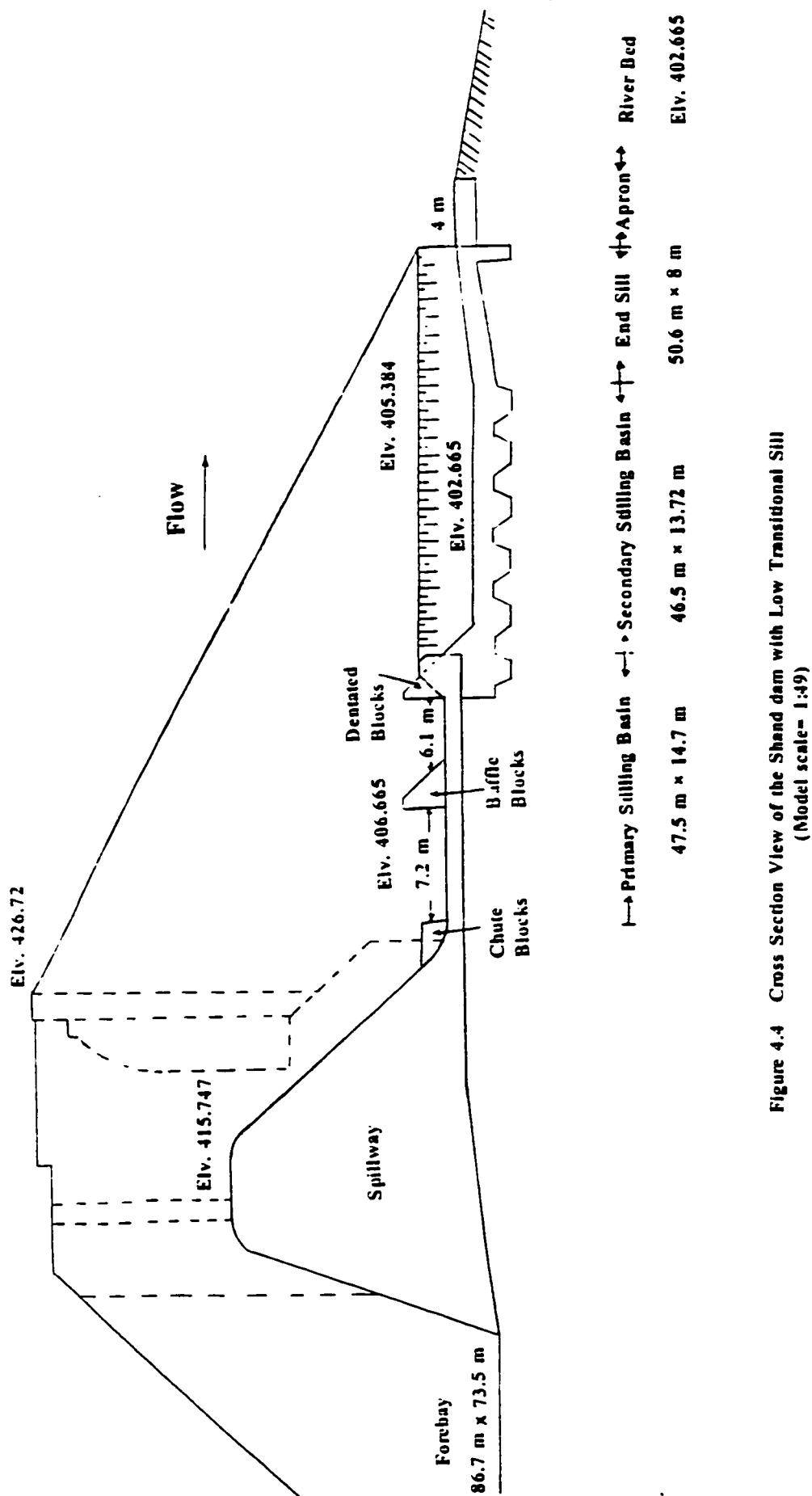


Figure 4.4 Cross Section View of the Shand dam with Low Transitional Sill
(Model scale= 1:49)

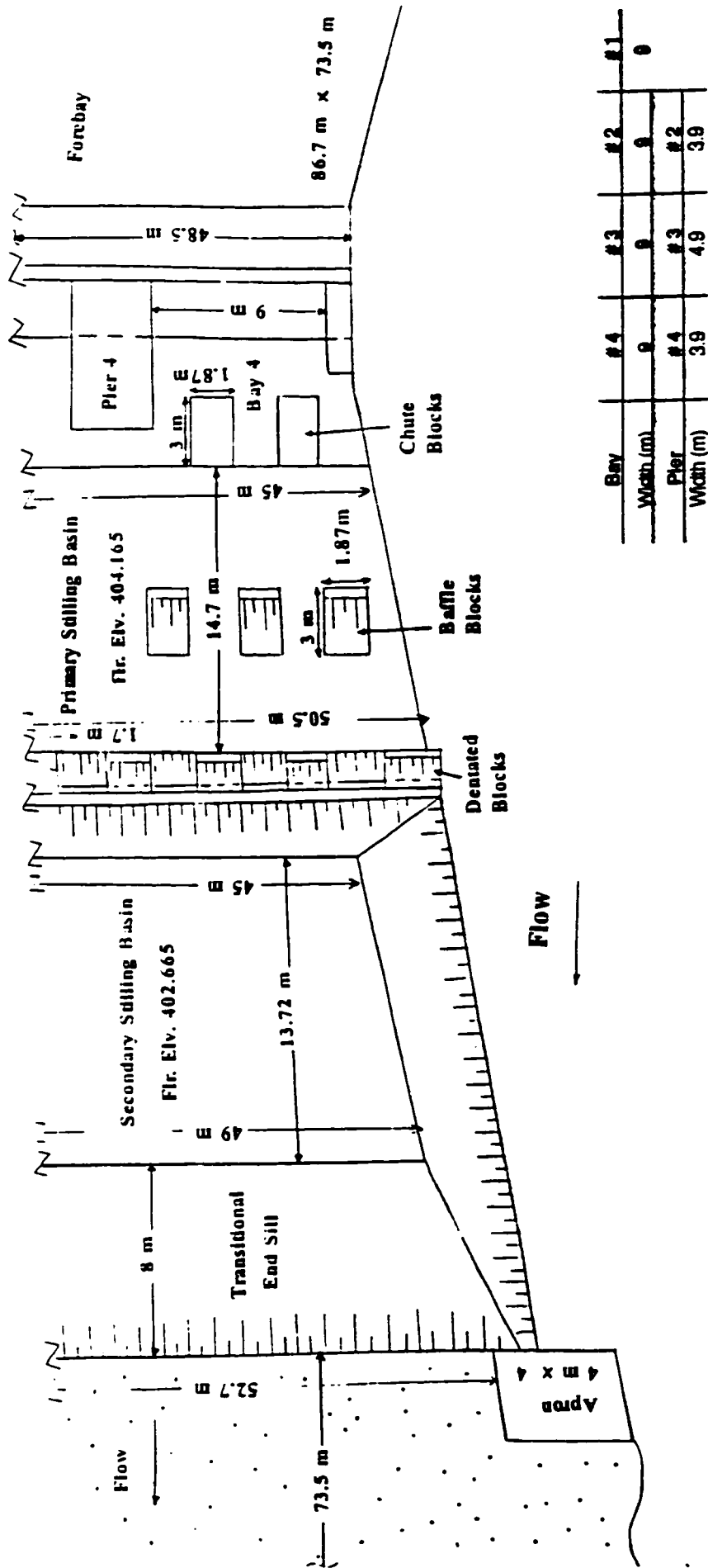
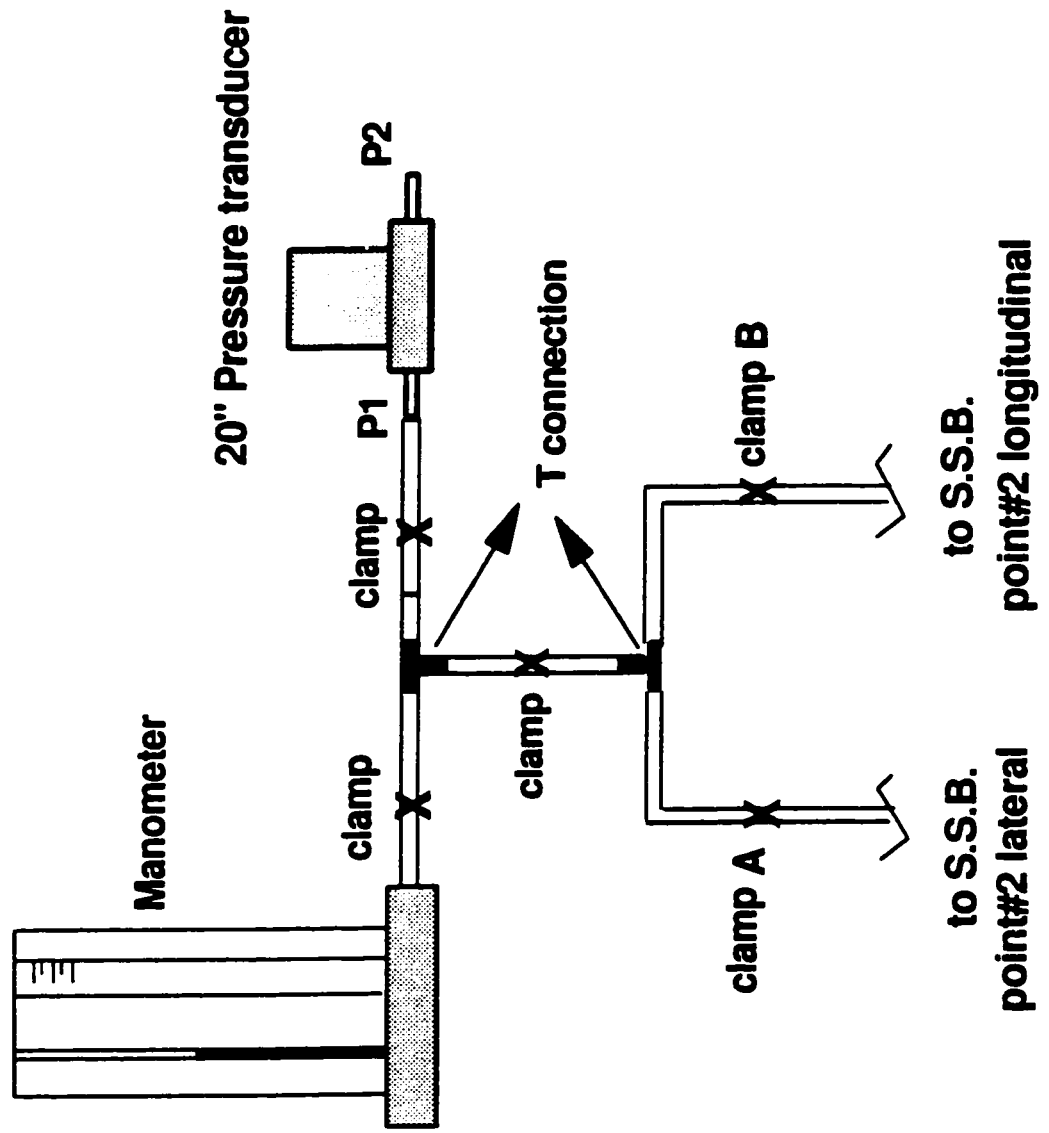


Figure 4.5 Plan View of the Shand dam with Low Transitional Sill
(Model scale- 1:49)

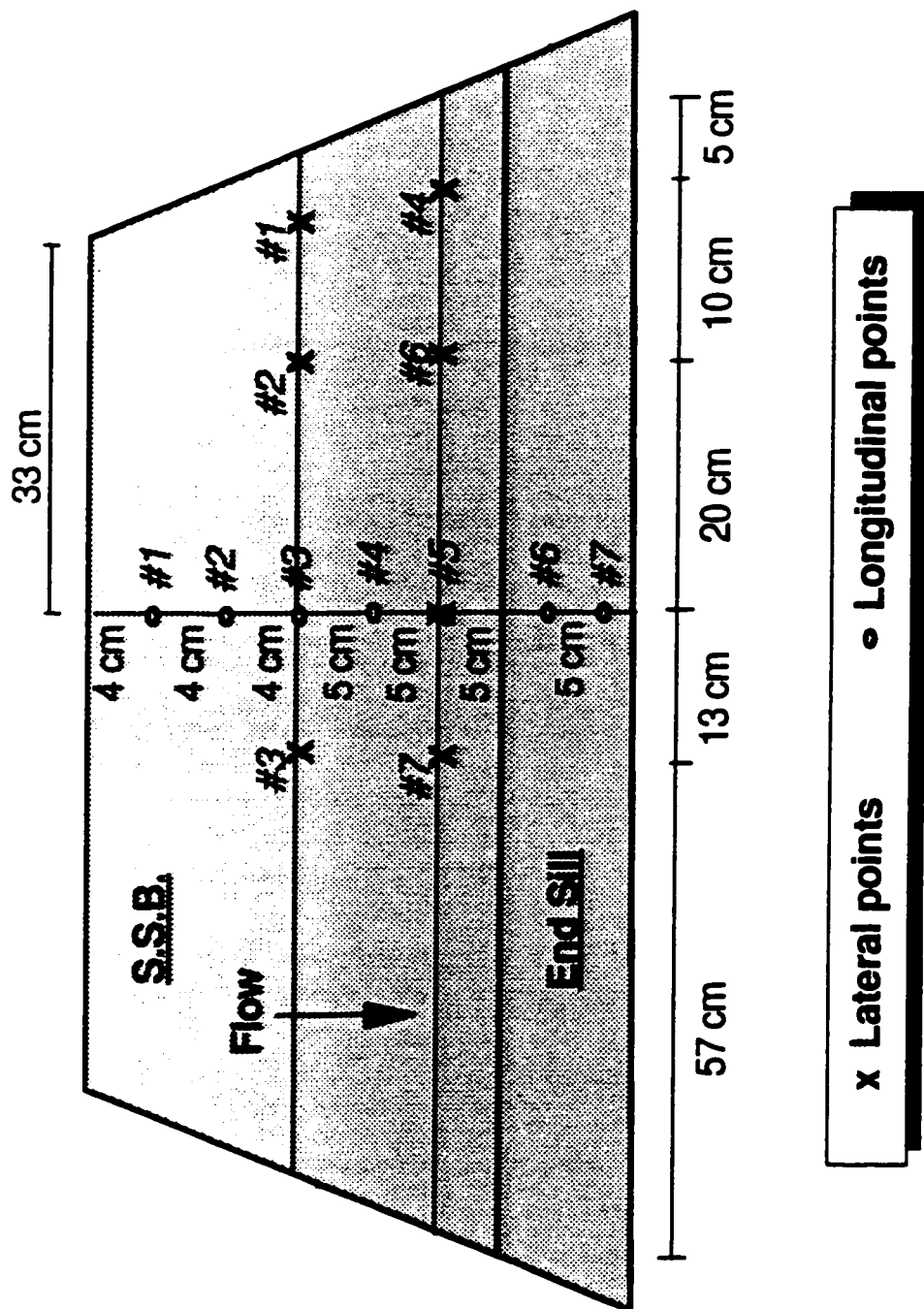


Fig. 4.6 Pressure Transducers

Fig. 4.7 Pressure Transducers setup measuring pressure on the S.S.B.



**Fig. 4.8 Plan View of Shand Dam Secondary Stilling
Basin and End Sill**



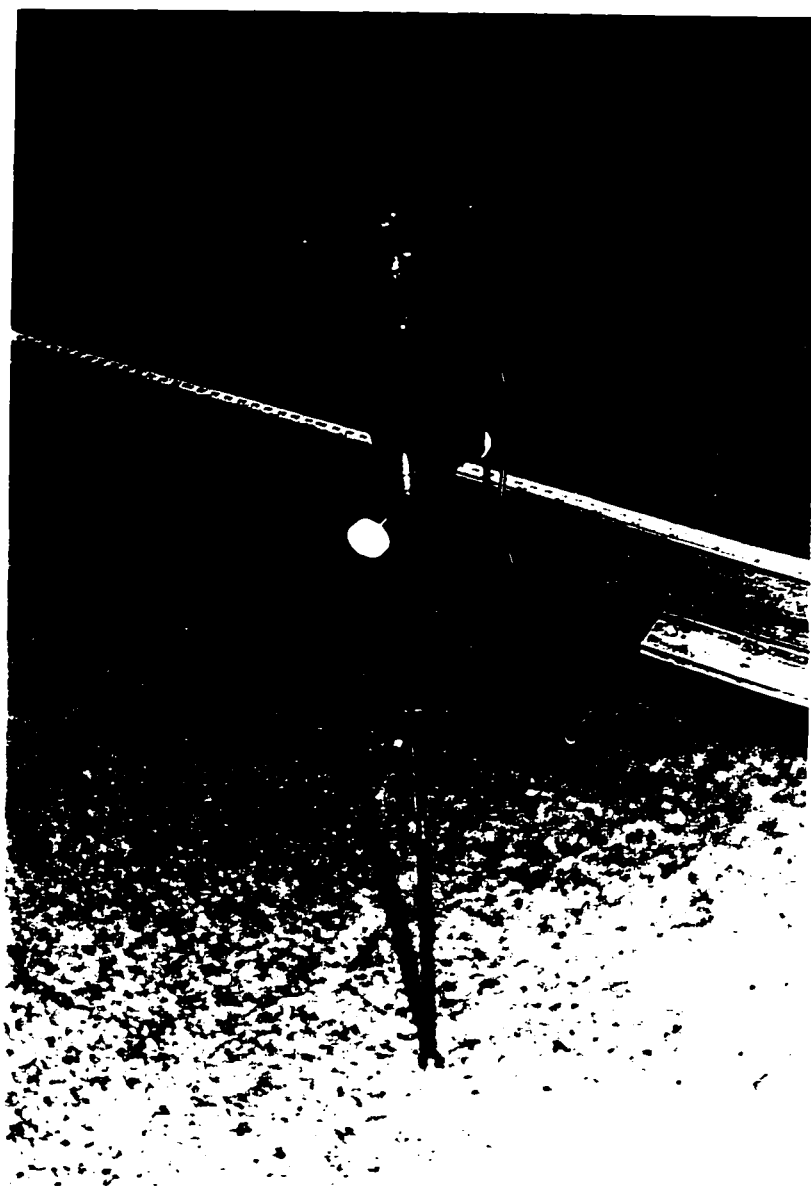


Fig. 4.9 Potentiometer Gauge

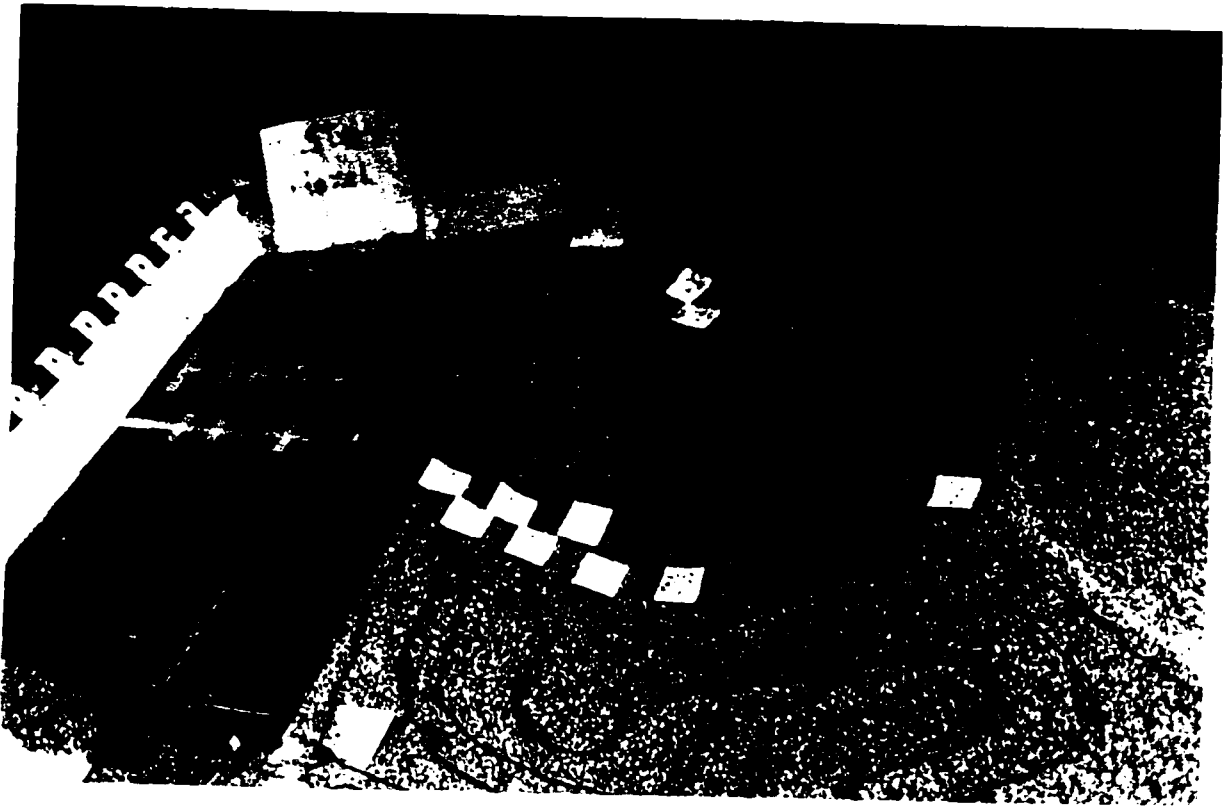


Fig. 4.10 The scour pattern for Hazel flood and low transitional end sill

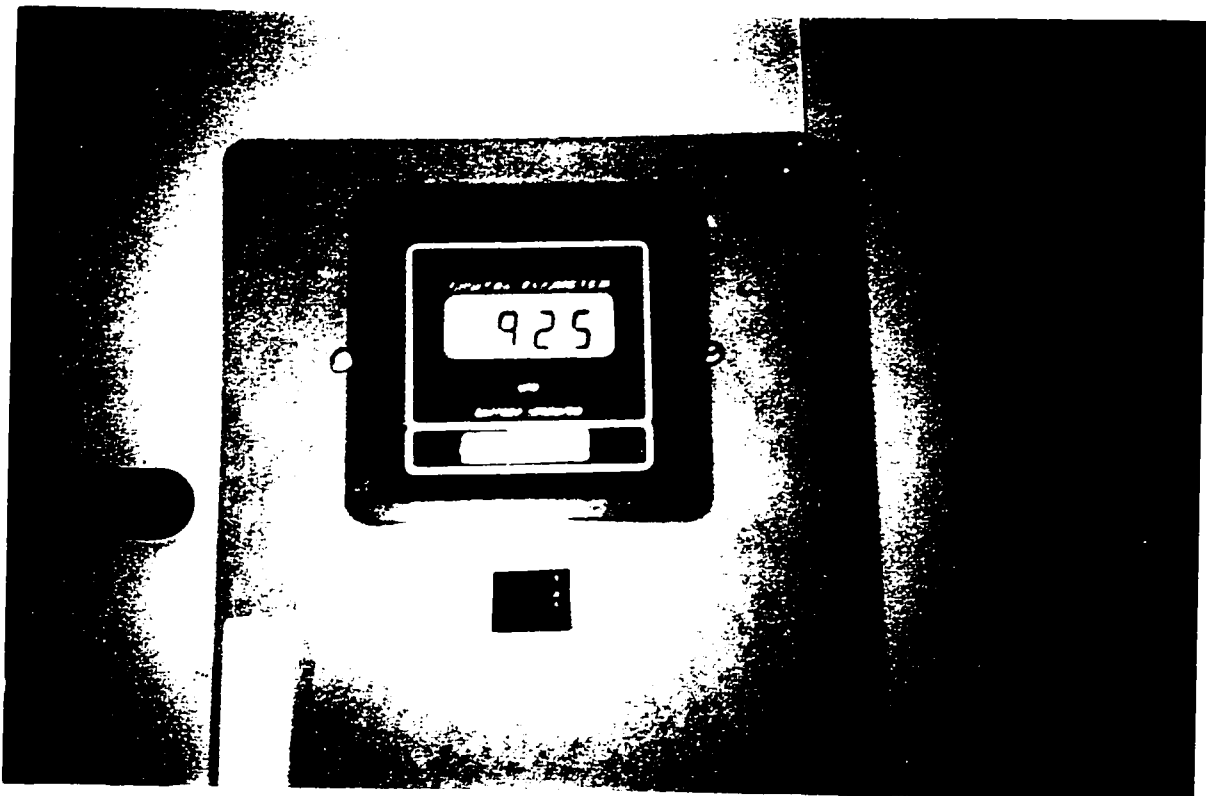


Fig. 4.11 Digital Flowmeter

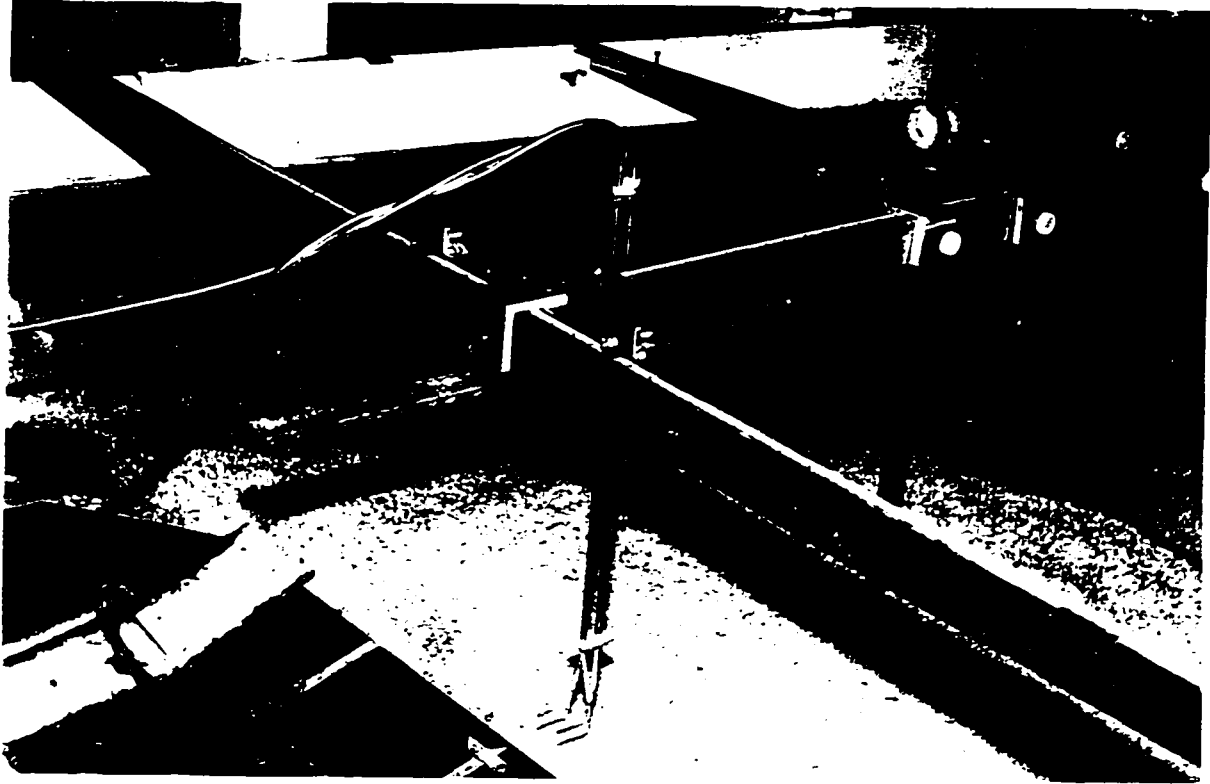


Fig. 4.12 Modified Pitot Tube

Fig. 4.14 Calibration curve for the 20" pressure transducer

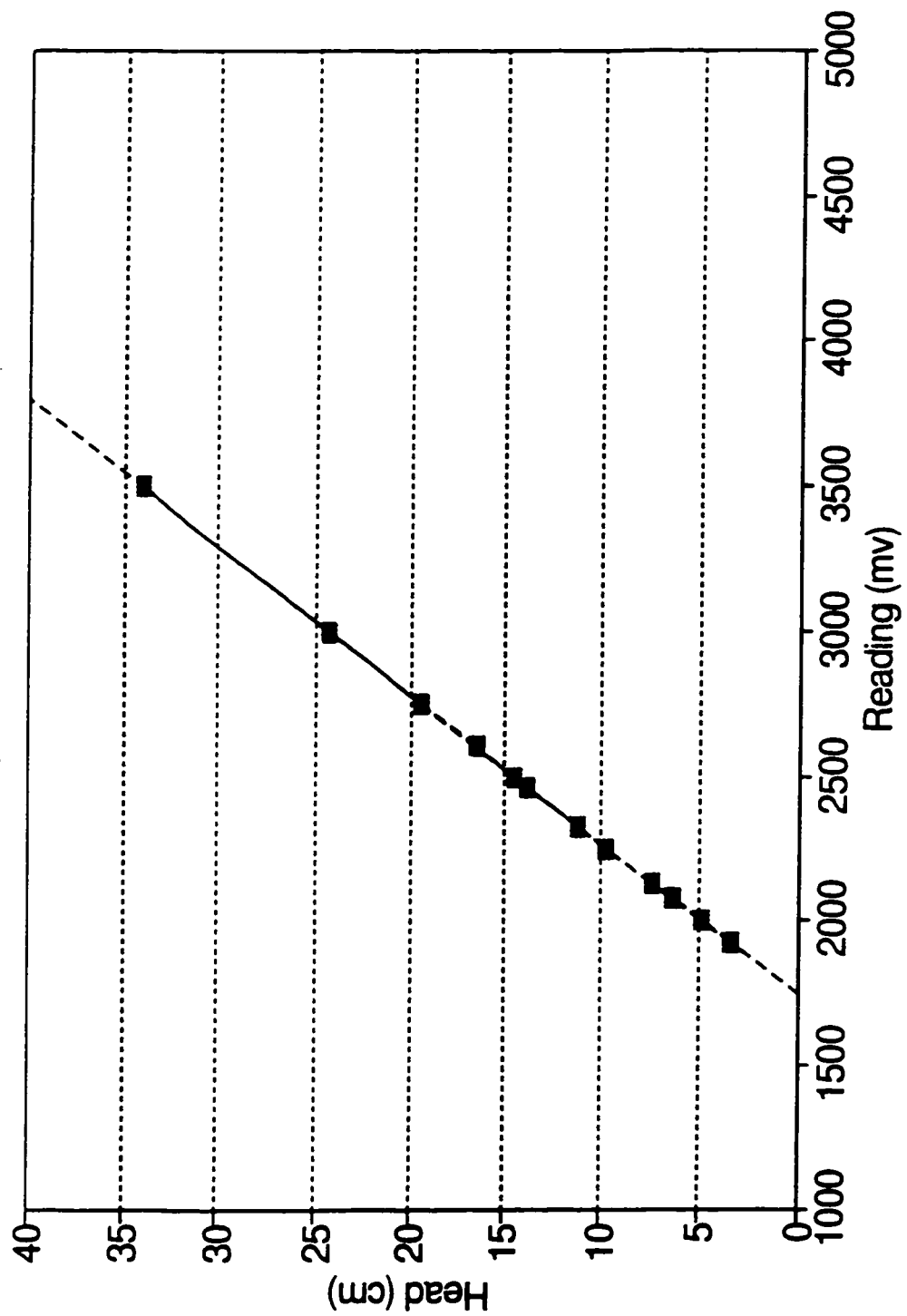


Fig. 4.15 Velocity head correlation
between modified & standard Pitot tube

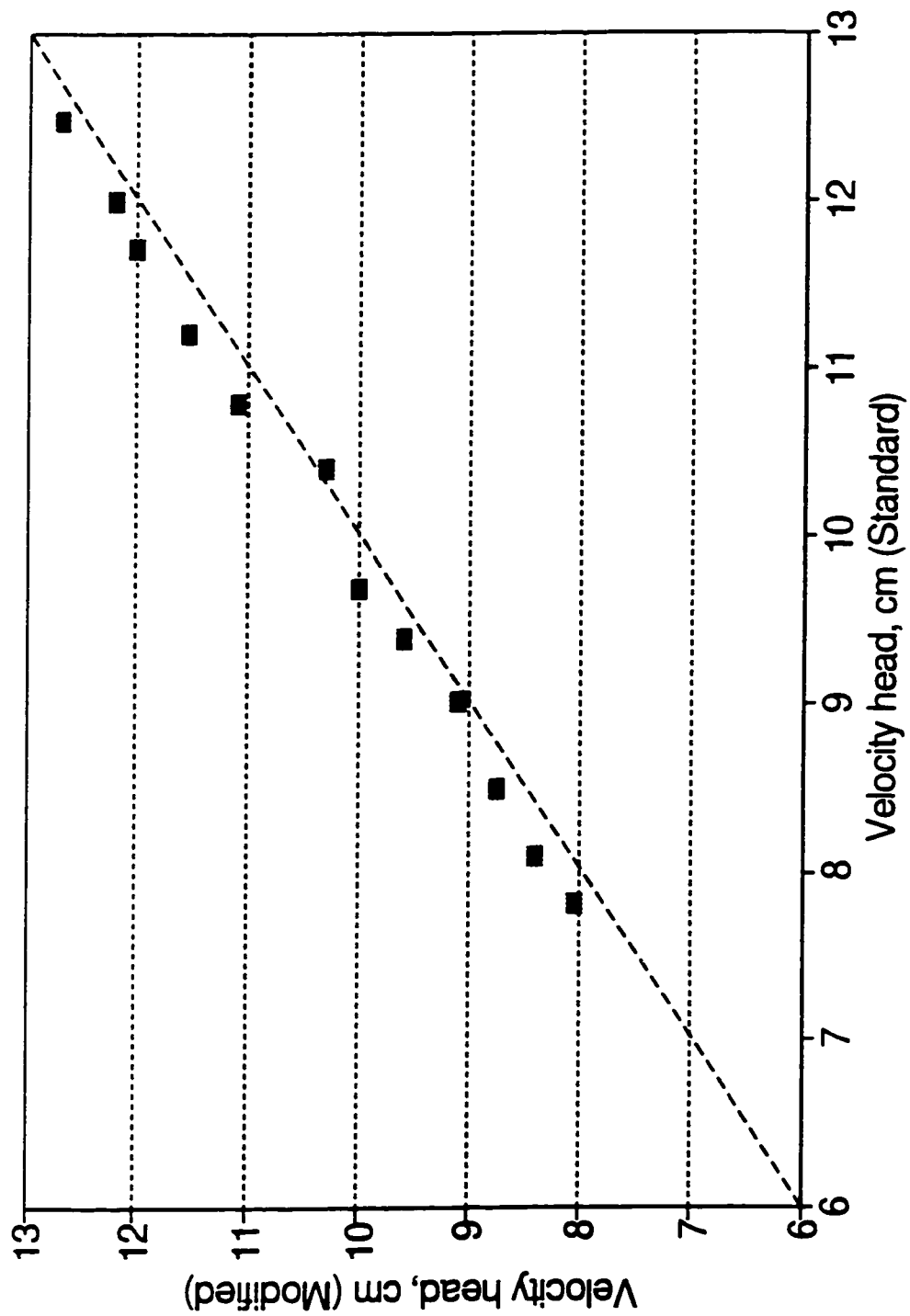


Fig. 5.1 3-D scour profile for

Flood=1:100 yr; End sill= 1:2; Maximum Scour (29,72)=-16.3 cm

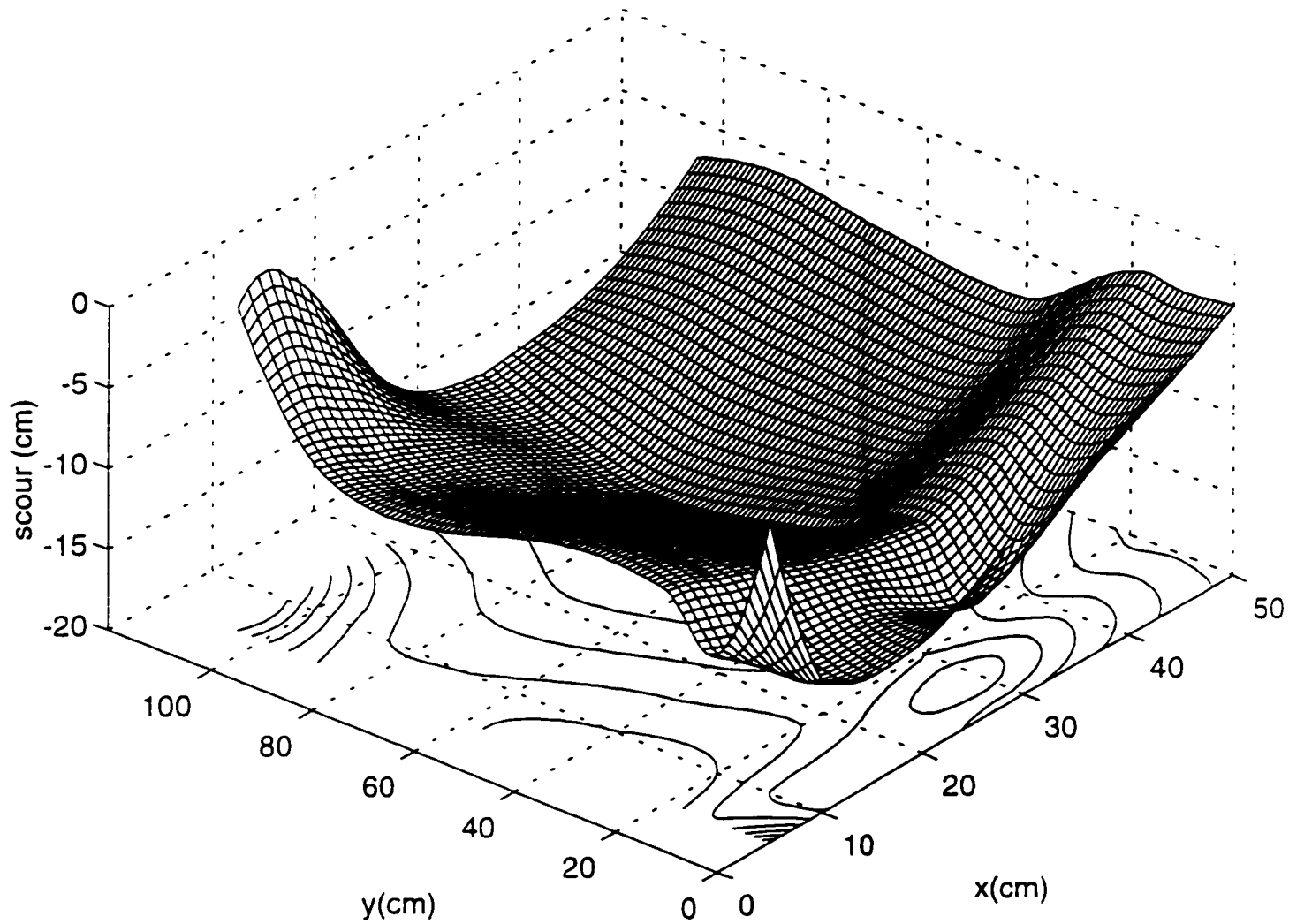


Fig. 5.2 Scour contours for

Flood=1:100 yr; End sill= 1:2; Maximum Scour (29,72)=-16.3 cm

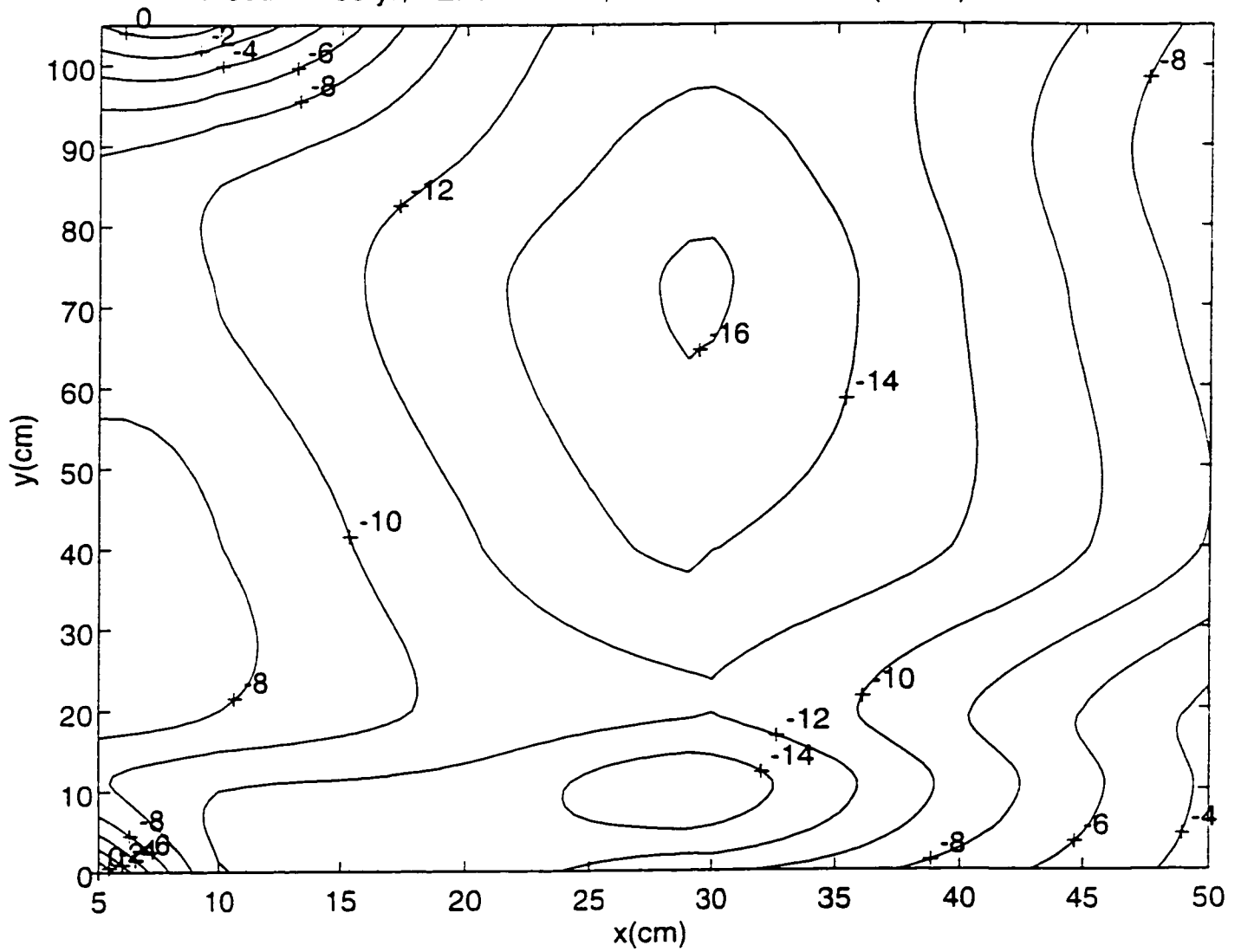


Fig. 5.3 3-D scour profile for

Flood=1:500 yr; End sill= 1:2; Maximum Scour (34,78)=-16.5 cm

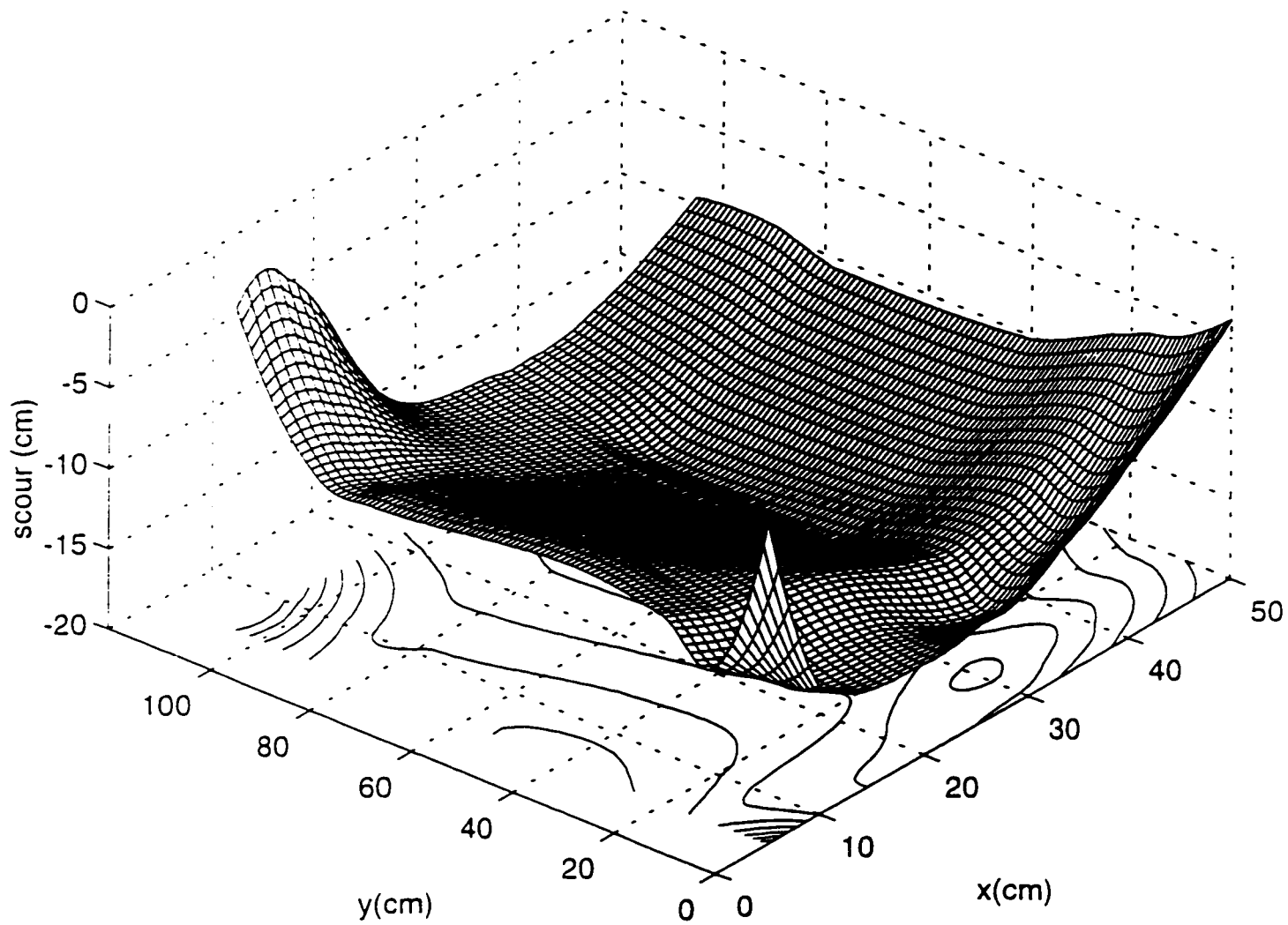


Fig. 5.4 Scour contours for

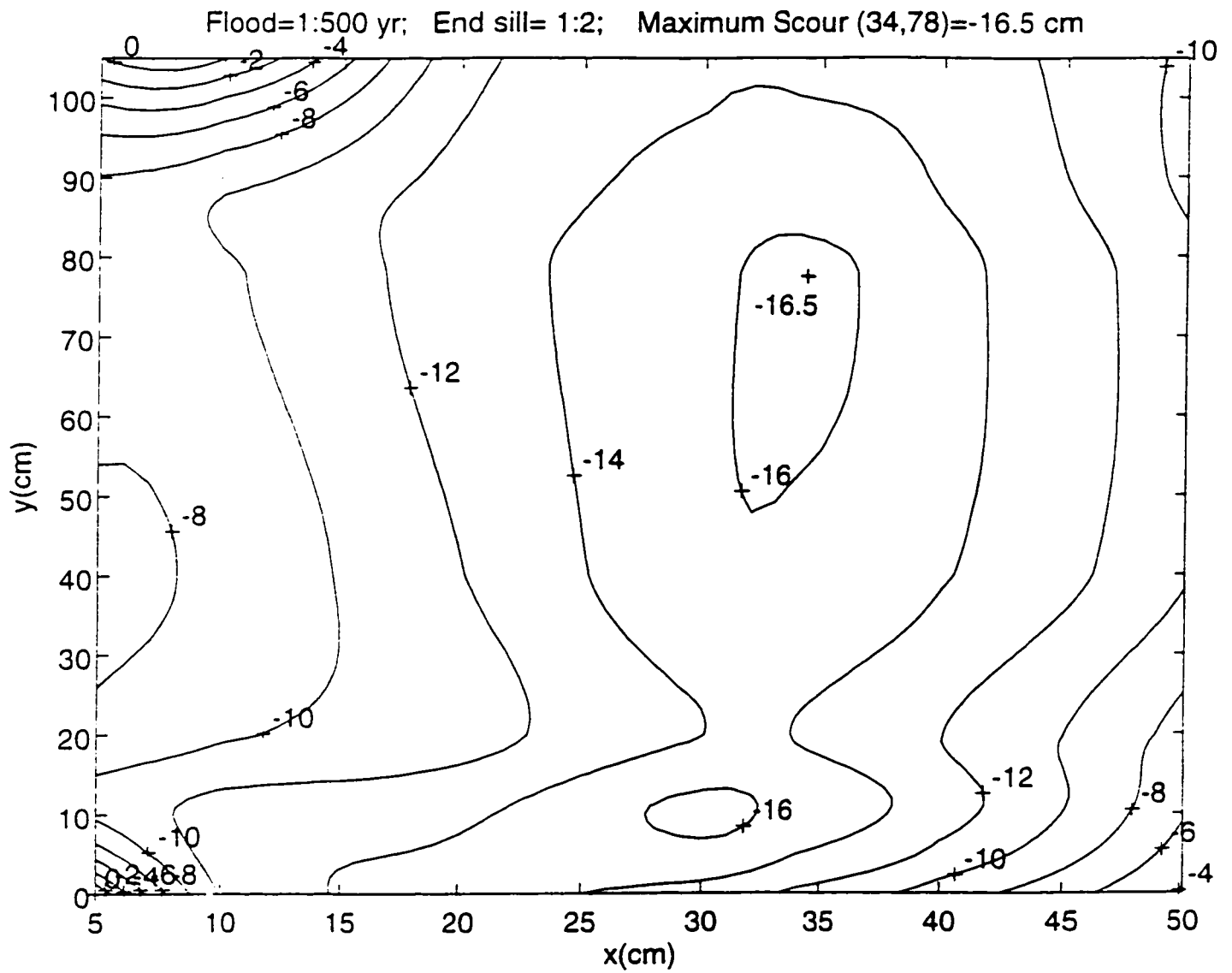


Fig. 5.5 Scour contours for

Flood= Hazel ; End sill= 1:2; Maximum Scour (43,55)=-18.03 cm

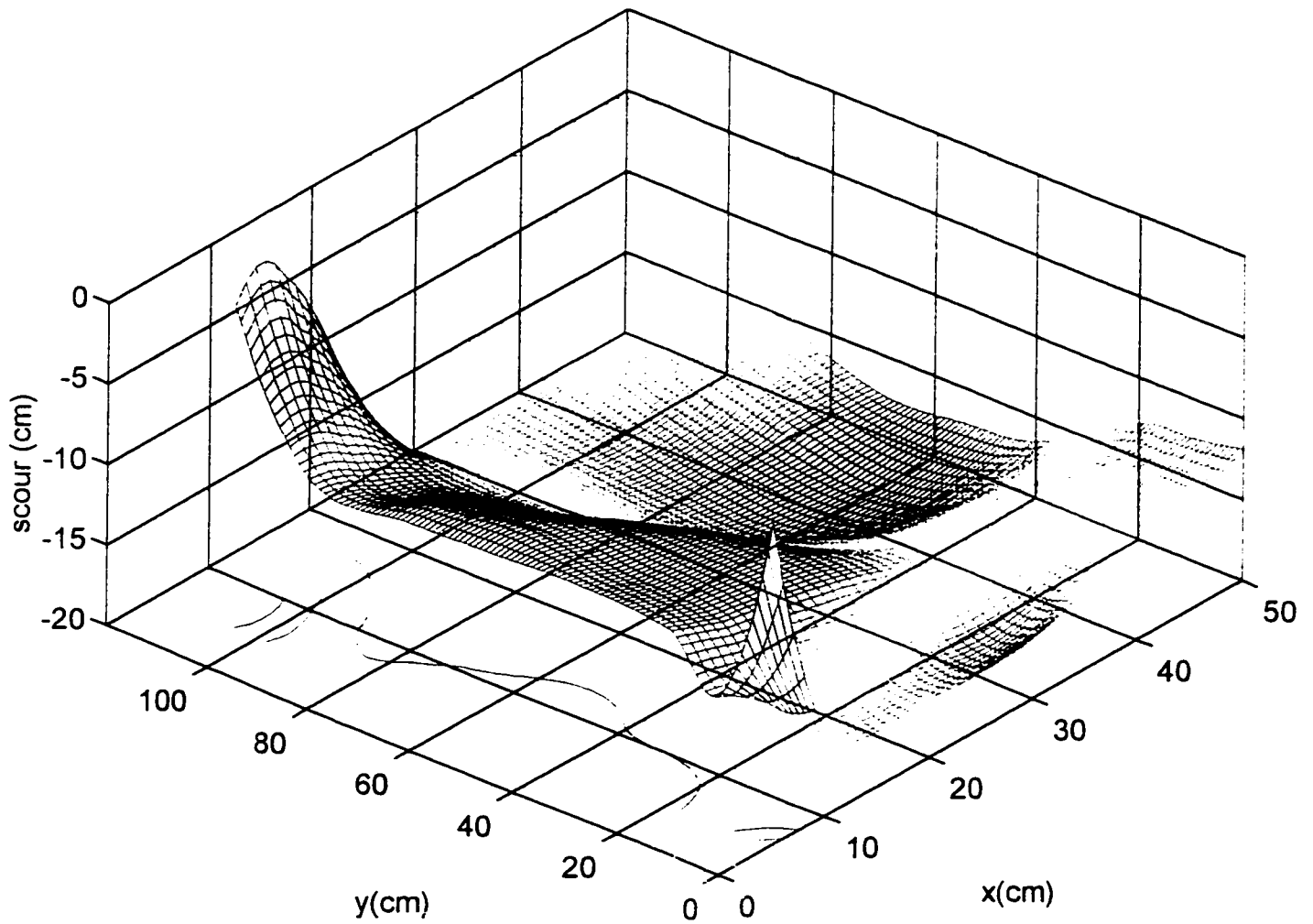


Fig. 5.6 3-D scour profile for

Flood= Hazel ; End sill= 1:2; Maximum Scour (43,55)=-18.03 cm

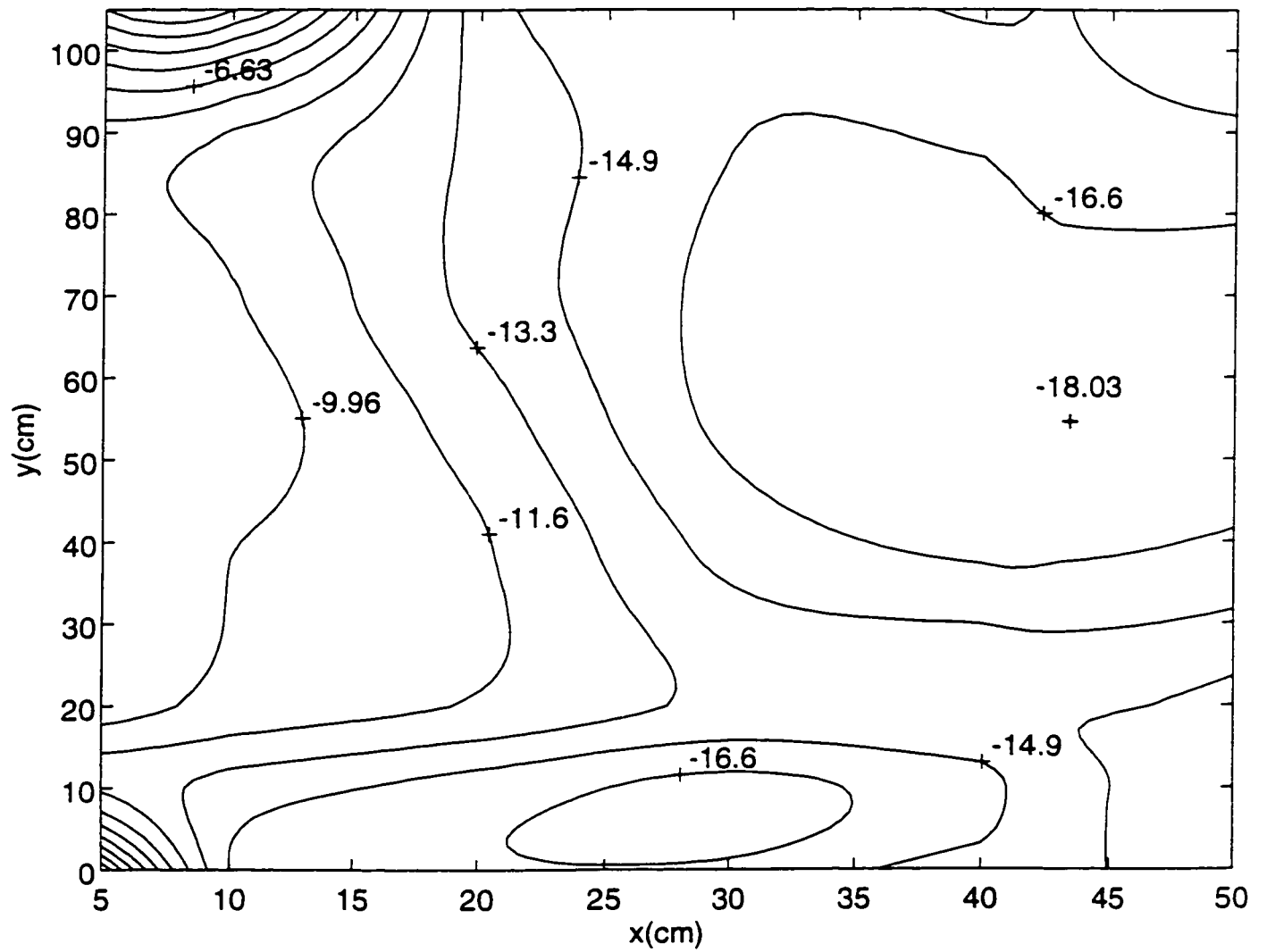


Fig. 5.7 Scour contours for

Flood=1:10,000 yr, End sill= 1:2; Maximum Scour (50,60)=-21.8 cm

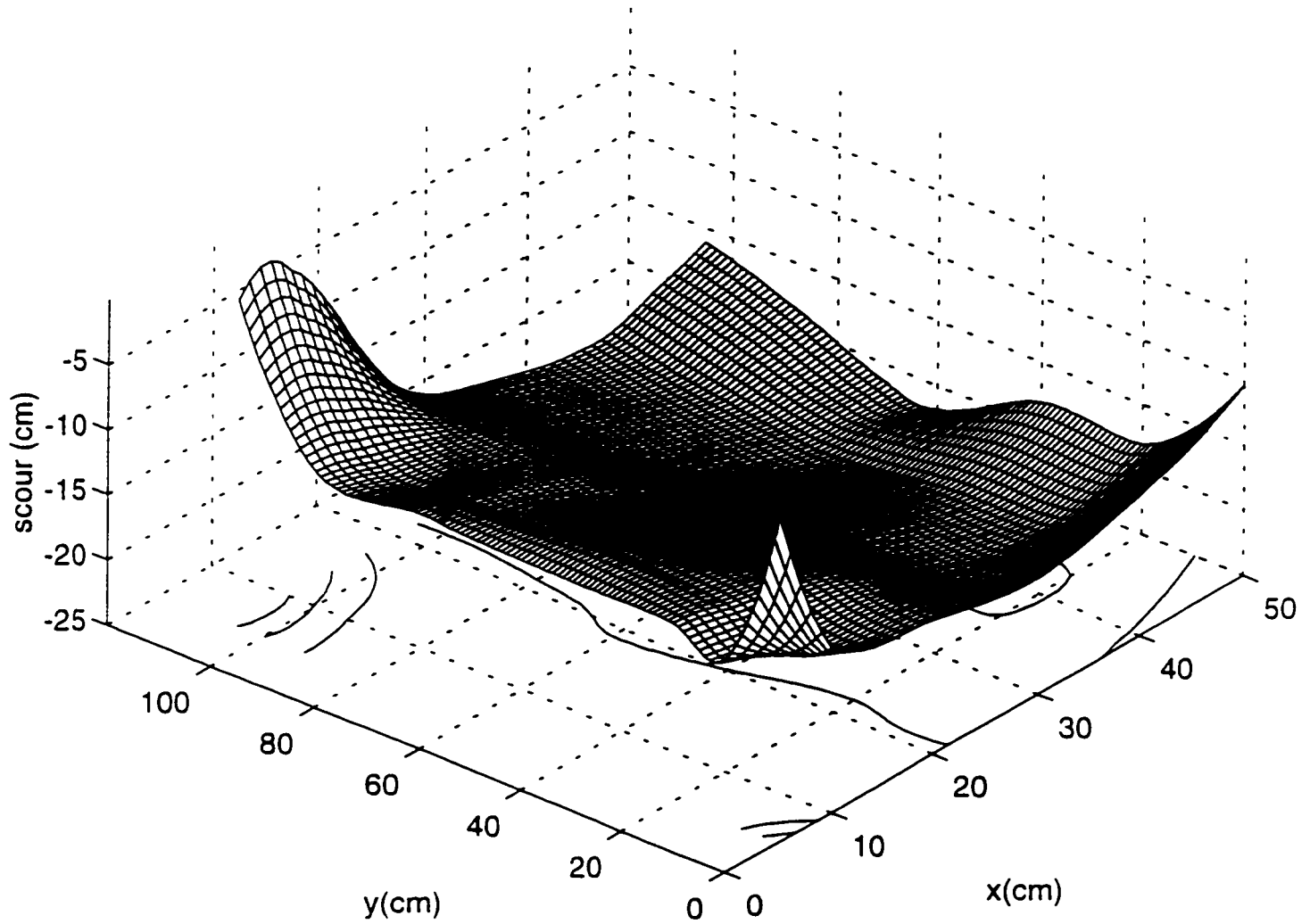
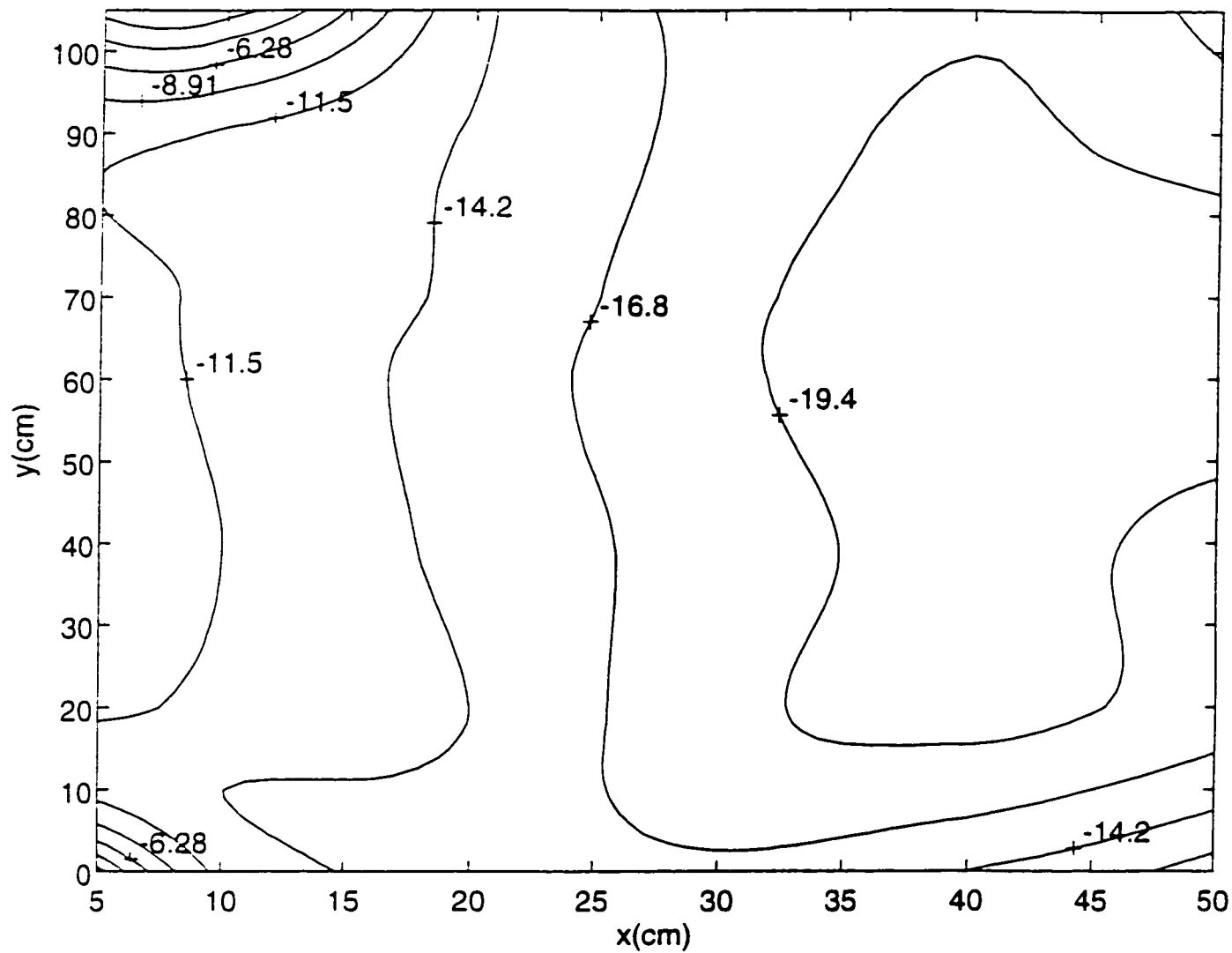


Fig. 5.8 3-D scour profile for

Flood=1:10,000 yr; End sill= 1:2; Maximum Scour (50,60)=-21.8 cm



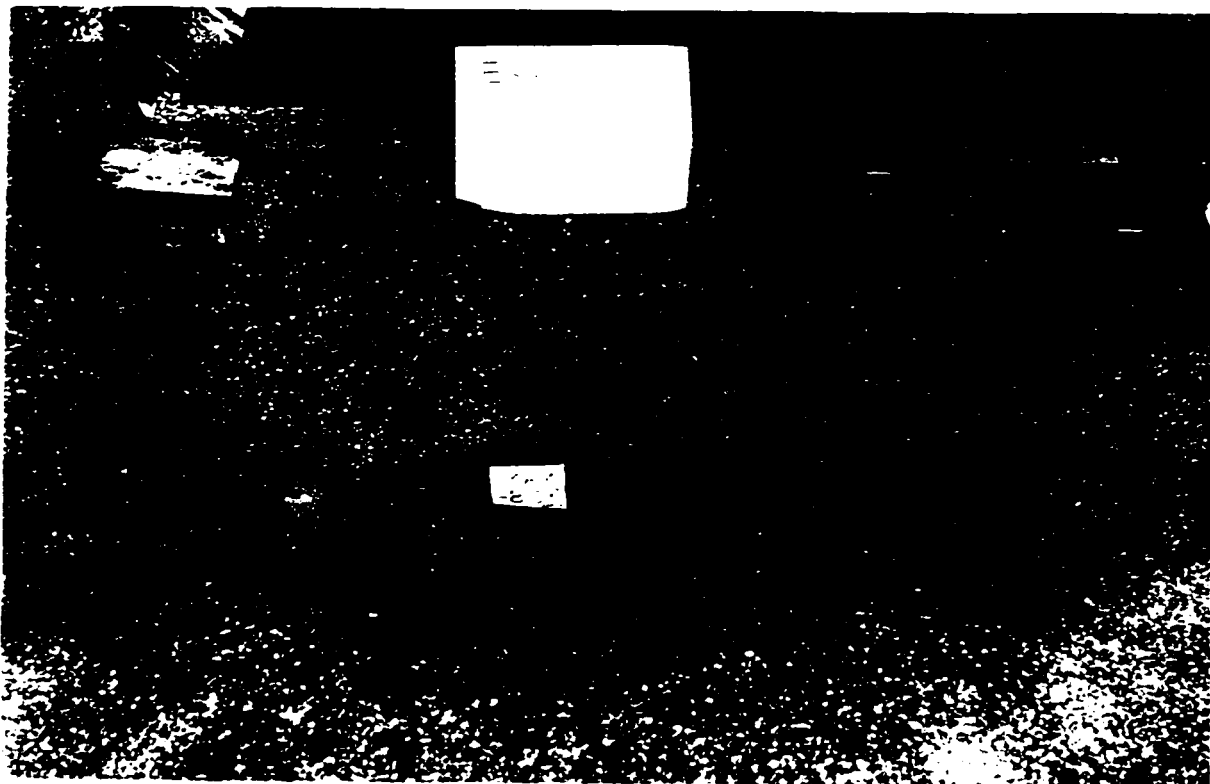


Fig. 5.9 Flume bed is exposed for 1:10000 yr flood, end sill 1V:2H



Fig. 5.10 Three Hydraulic jumps on the primary basin, secondary basin and river bed for Hazel flood, end sill 1V:2H and high tailwater level

Fig. 5.11 Scour contours for

Flood=1:100 yr; End sill= 1:5; Maximum Scour (20,70)=-5.38 cm

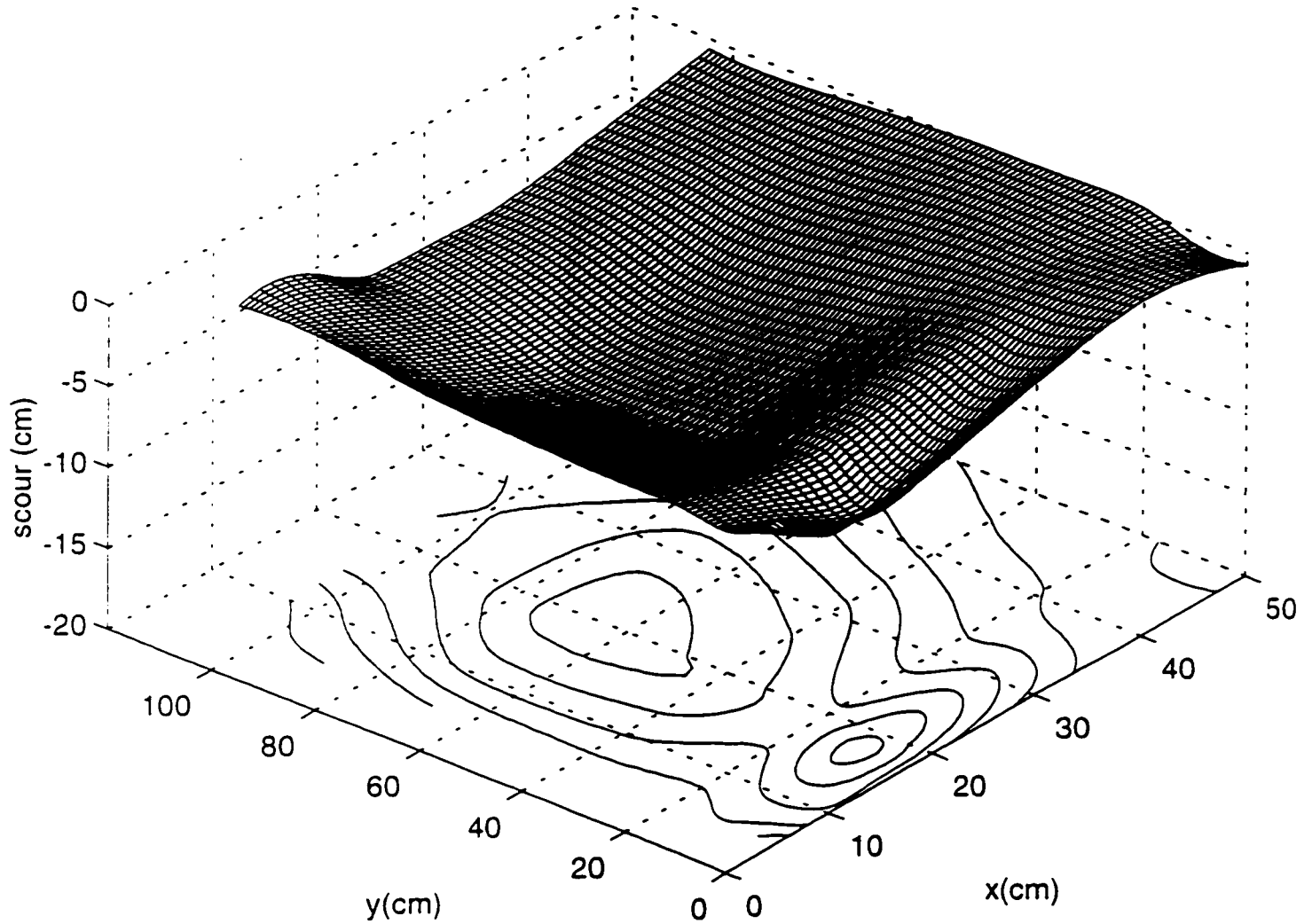


Fig. 5.12 3-D scour profile for

Flood=1:100 yr; End sill= 1:5; Maximum Scour (20,70)=-5.38 cm

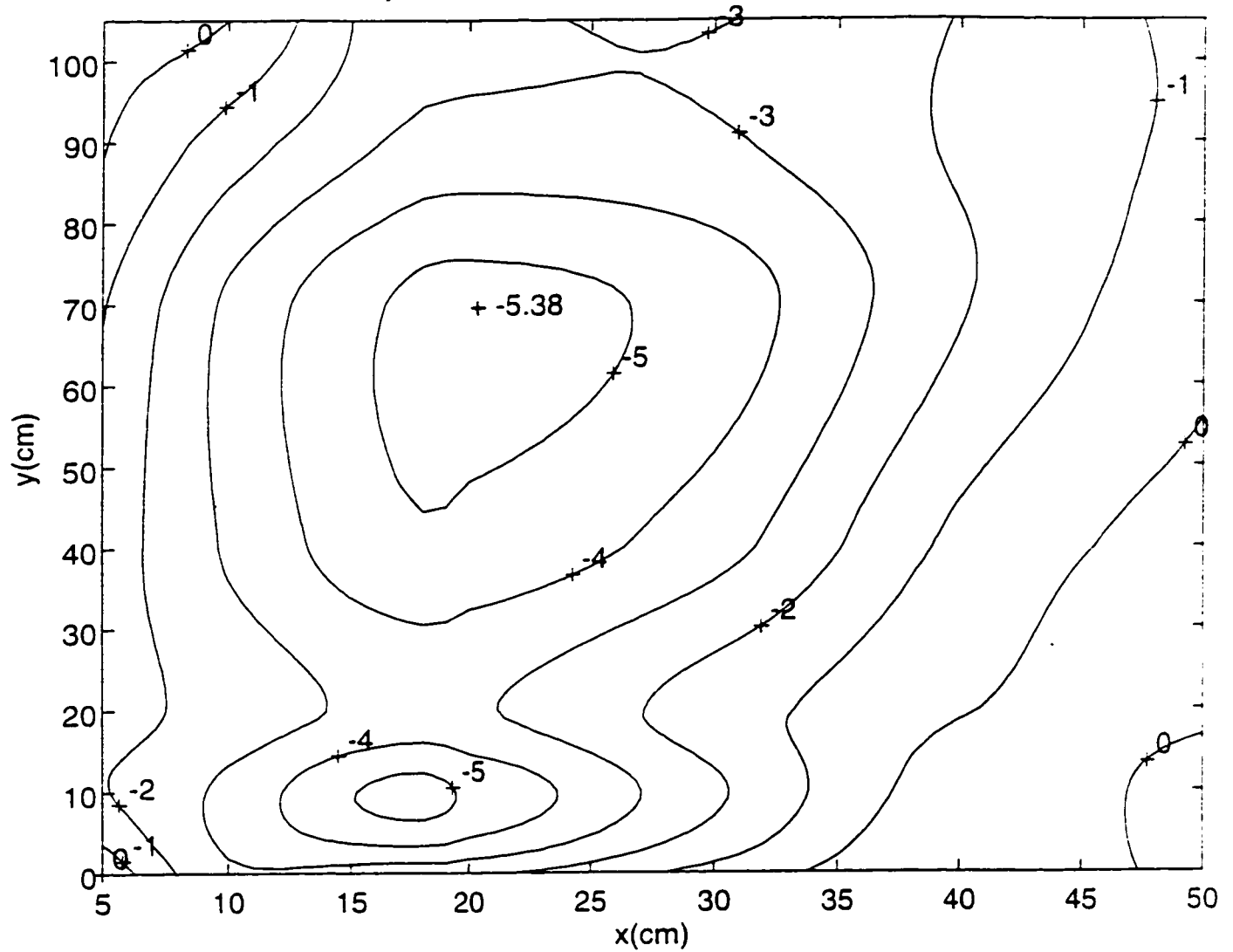


Fig. 5.13 Scour contours for

Flood=1:500 yr; End sill= 1:5; Maximum Scour (26,69)=-6.22 cm

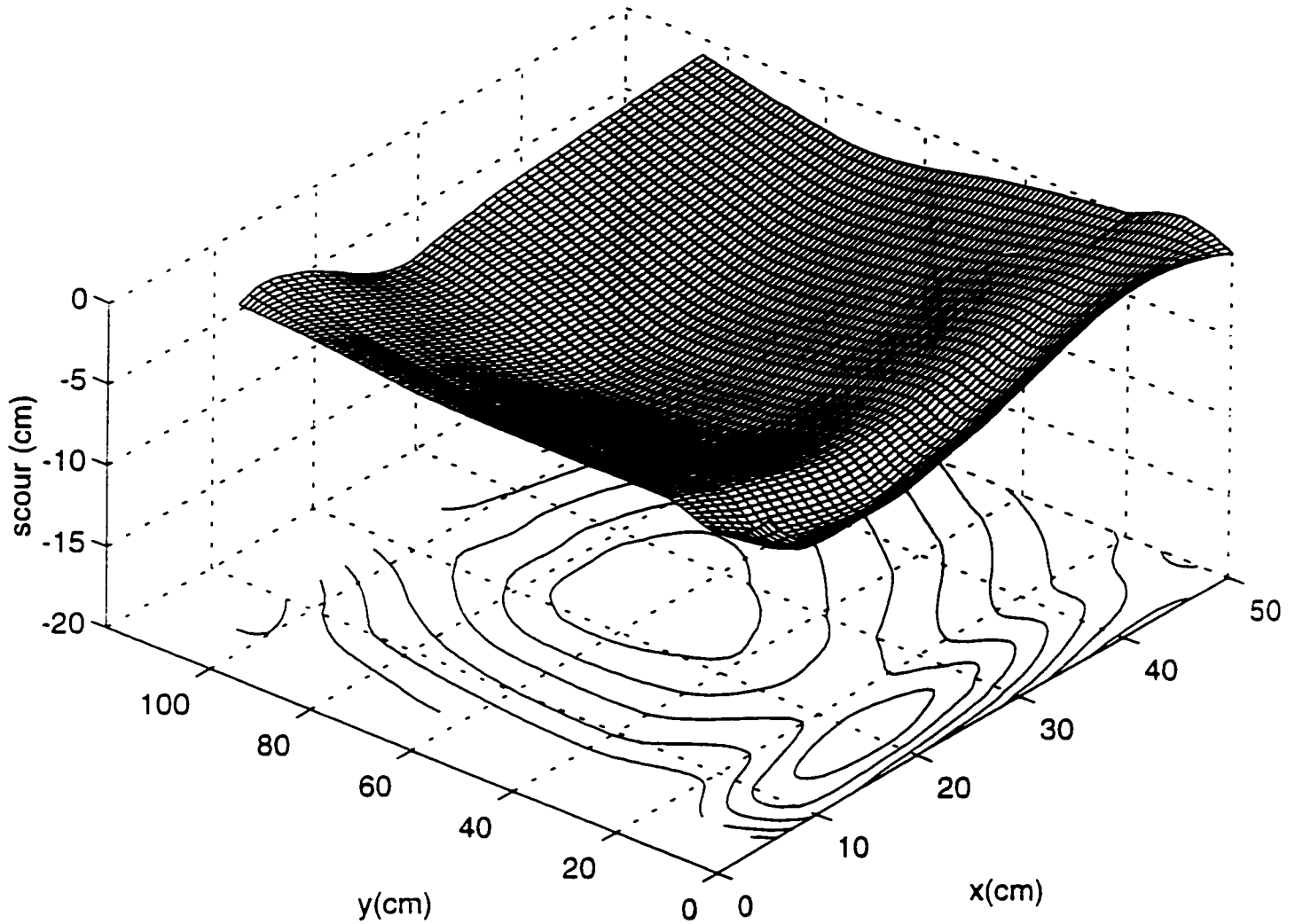


Fig. 5.14 3-D scour profile for

Flood=1:500 yr; End sill= 1:5; Maximum Scour (26,69)=-6.22 cm

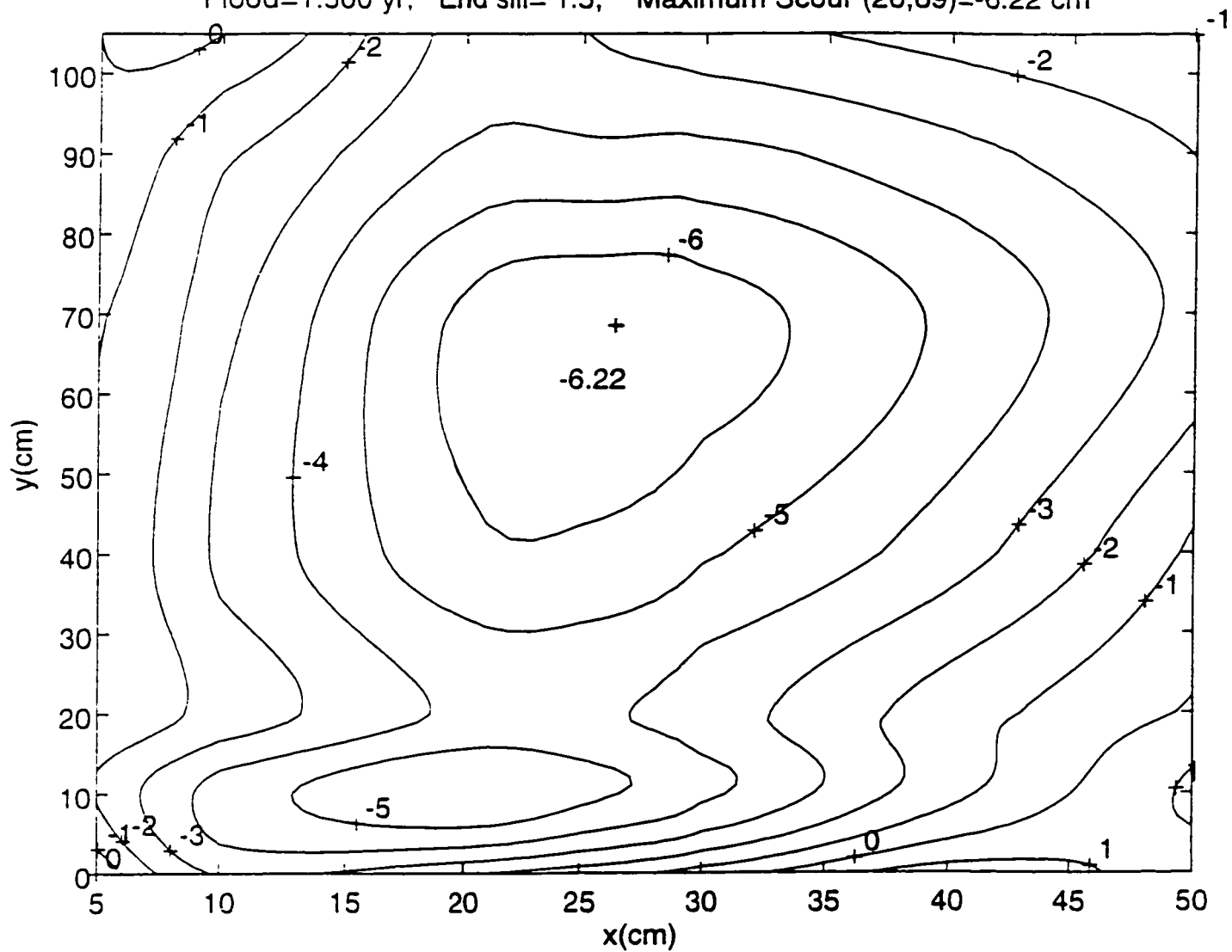


Fig. 5.15 Scour contours for

Flood=Hazel; End sill= 1:5; Maximum Scour (21,11)=-6.80 cm

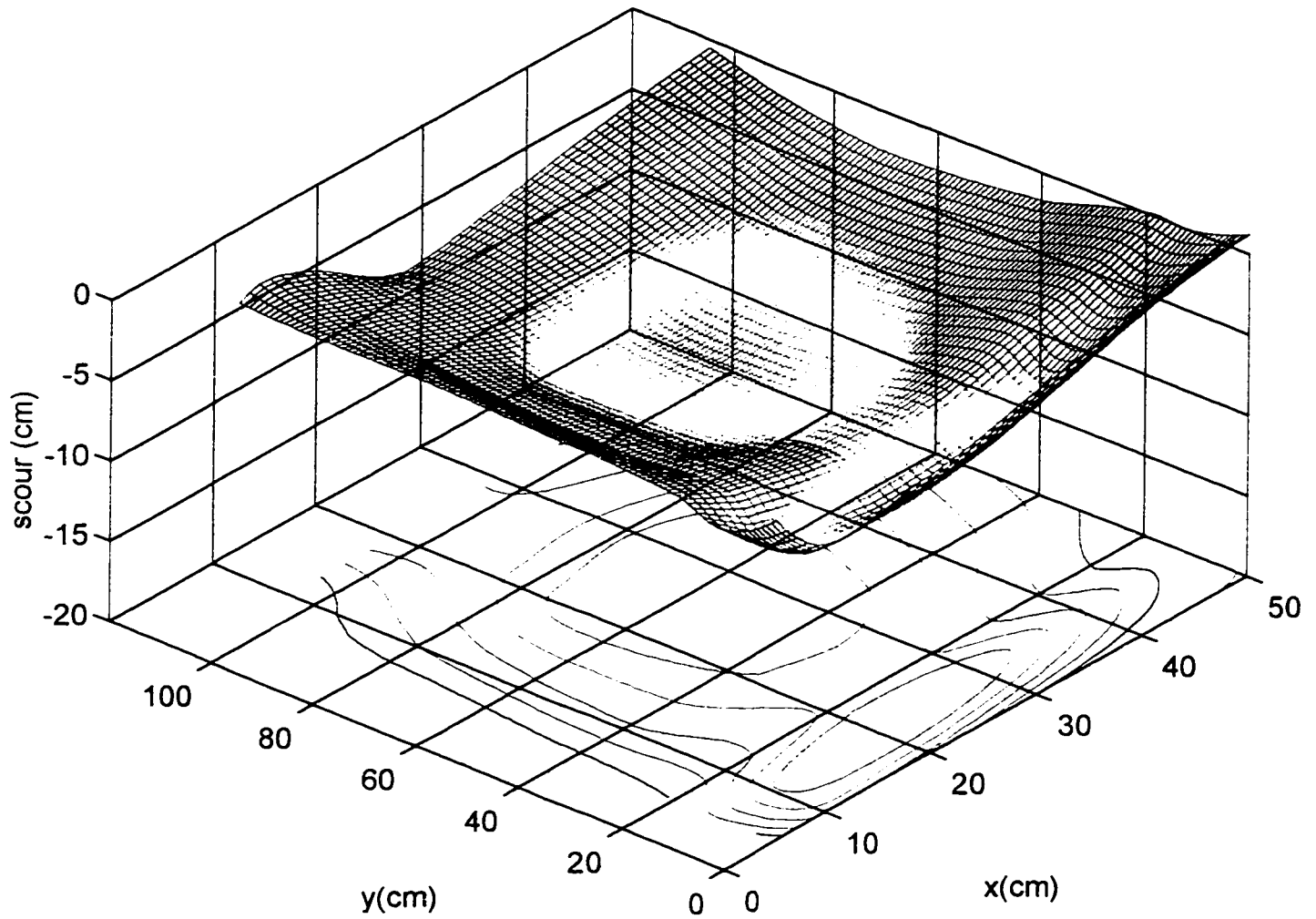


Fig. 5.16 3-D scour profile for

Flood=Hazel; End sill= 1:5; Maximum Scour (21,11)=-6.80 cm

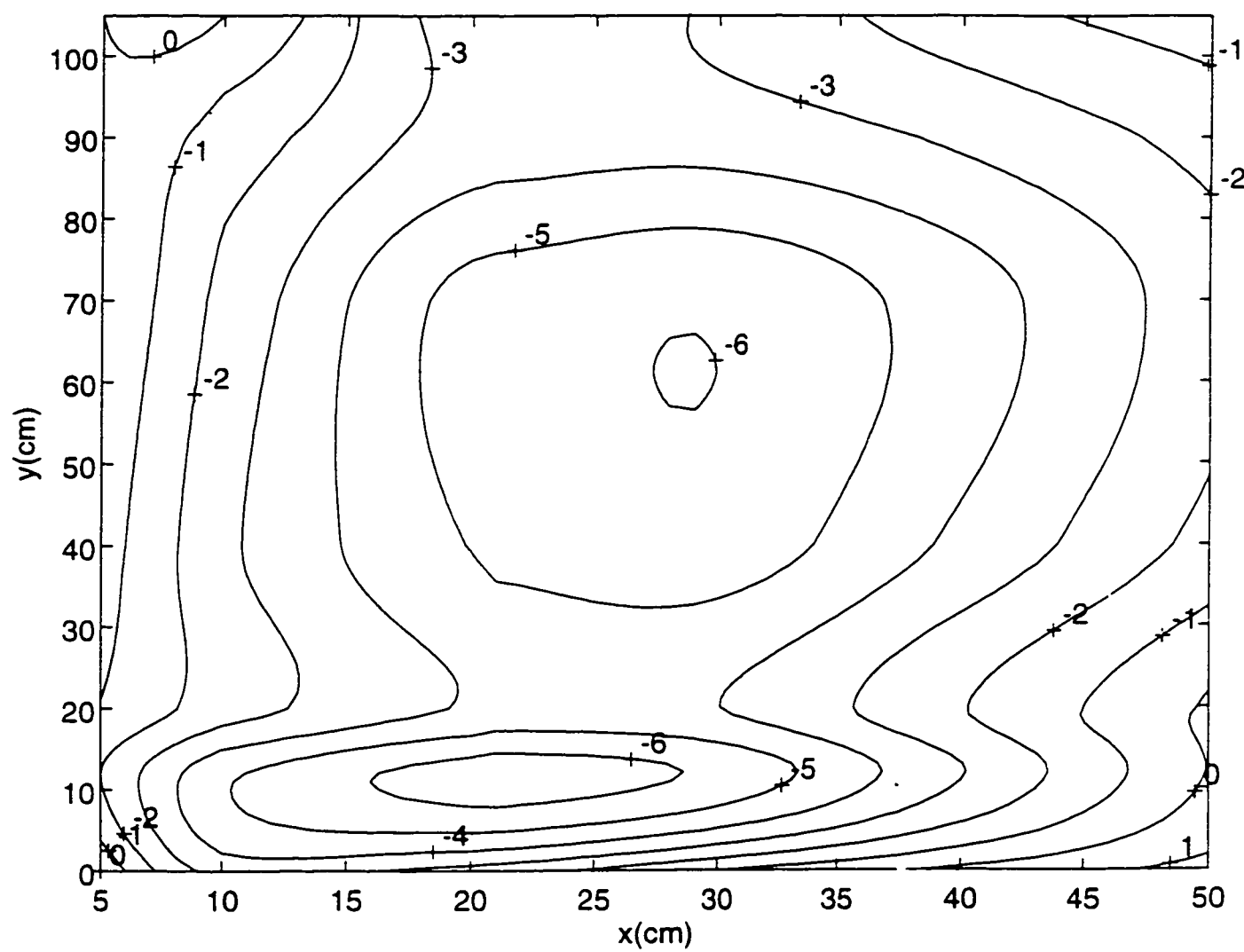


Fig. 5.17 Scour contours for

Flood=1:10,000 yr; End sill= 1:5; Maximum Scour (36,58)=-8.43 cm

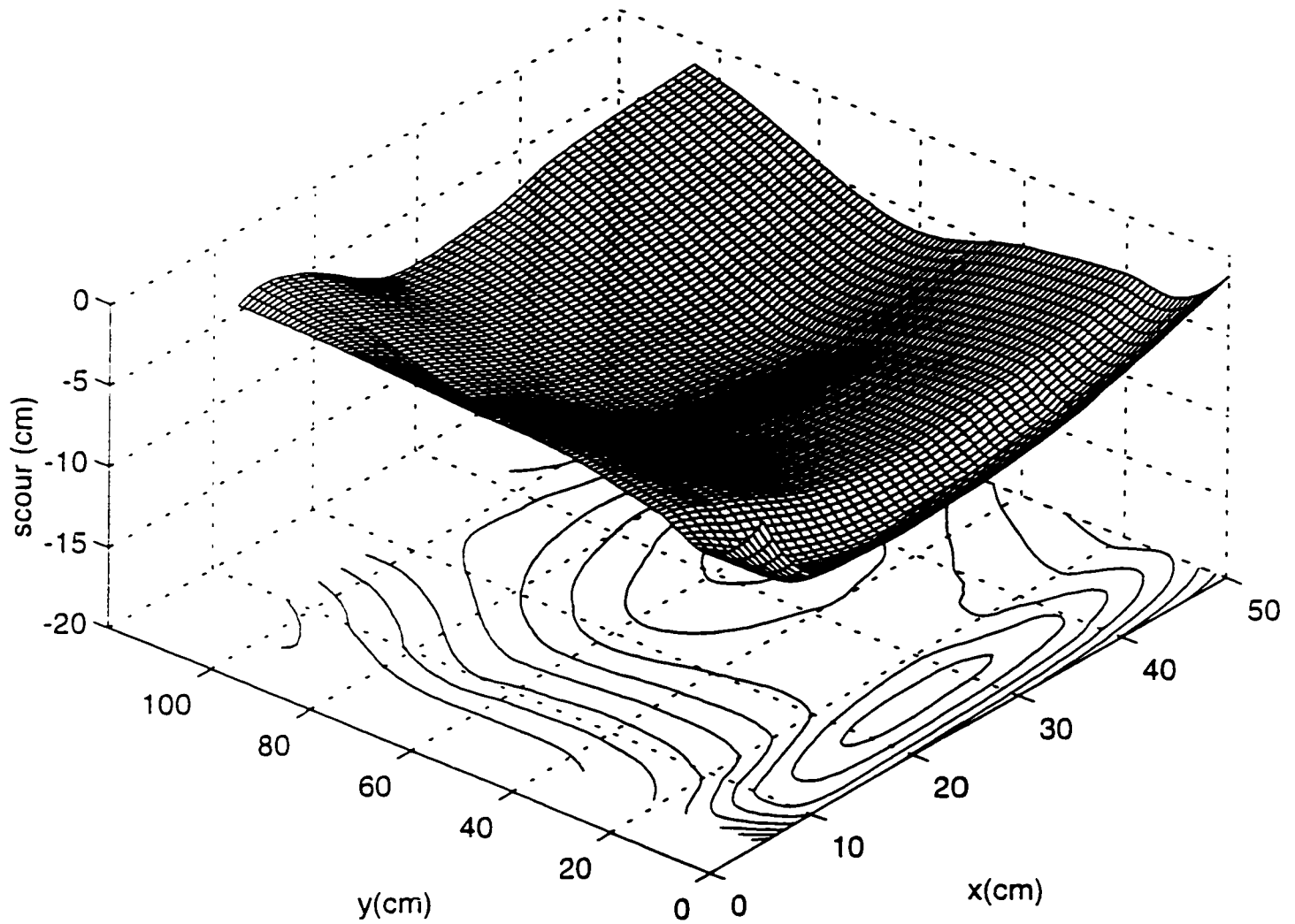


Fig. 5.18 3-D scour profile for

Flood=1:10,000 yr; End sill= 1:5; Maximum Scour (36,58)=-8.43 cm

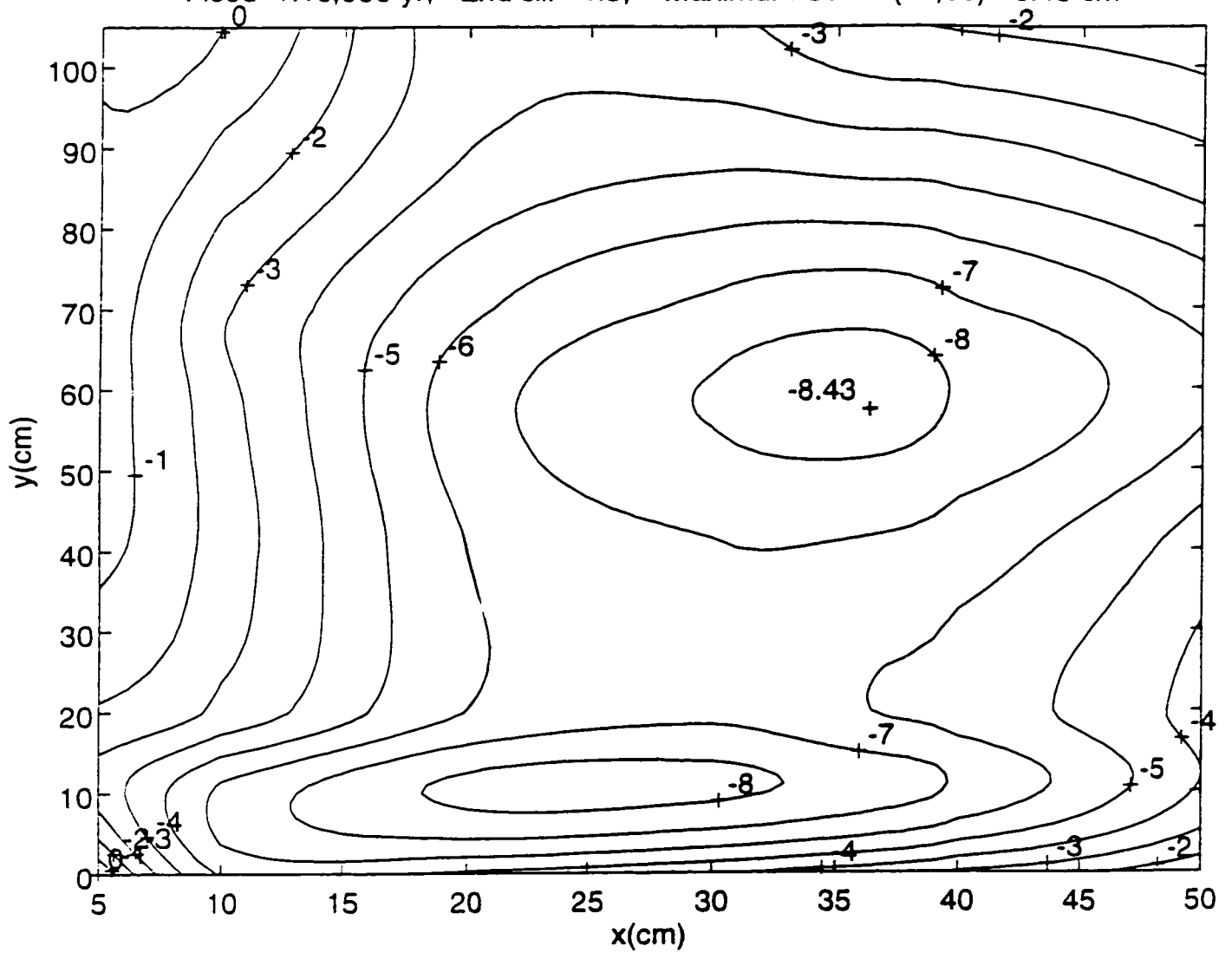




Fig. 5.19 Two hydraulic jumps on the primary and secondary basins for the case of Hazel flood, end sill 1V:5H

Fig. 5.20 3-D scour profile for

Flood=1:100 yr; End sill= 1:6; Maximum Scour (21,74)=-3.94 cm

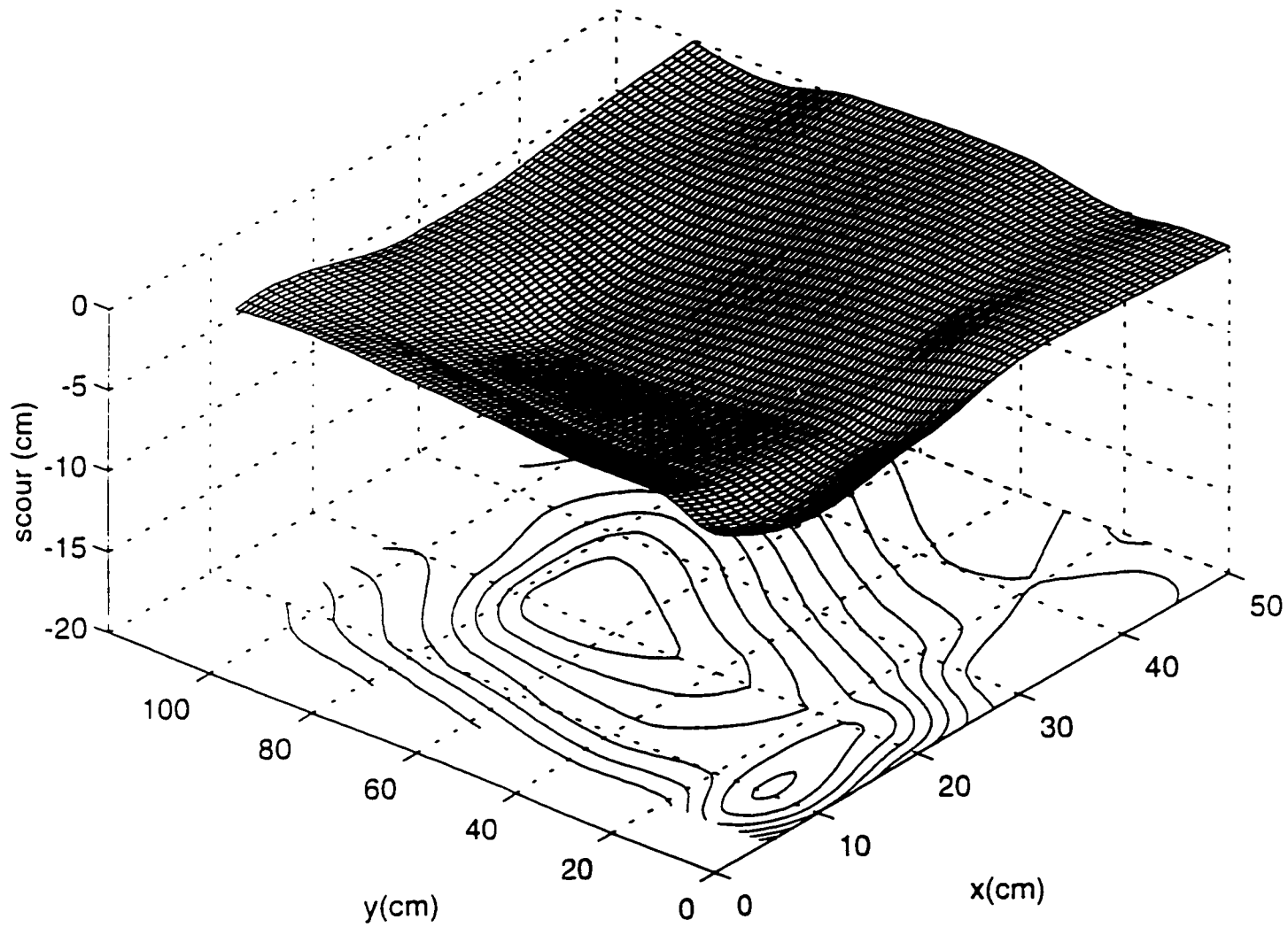


Fig. 5.21 Scour contours for

Flood=1:100 yr; End sill= 1:6; Maximum Scour (21,74)=-3.94 cm

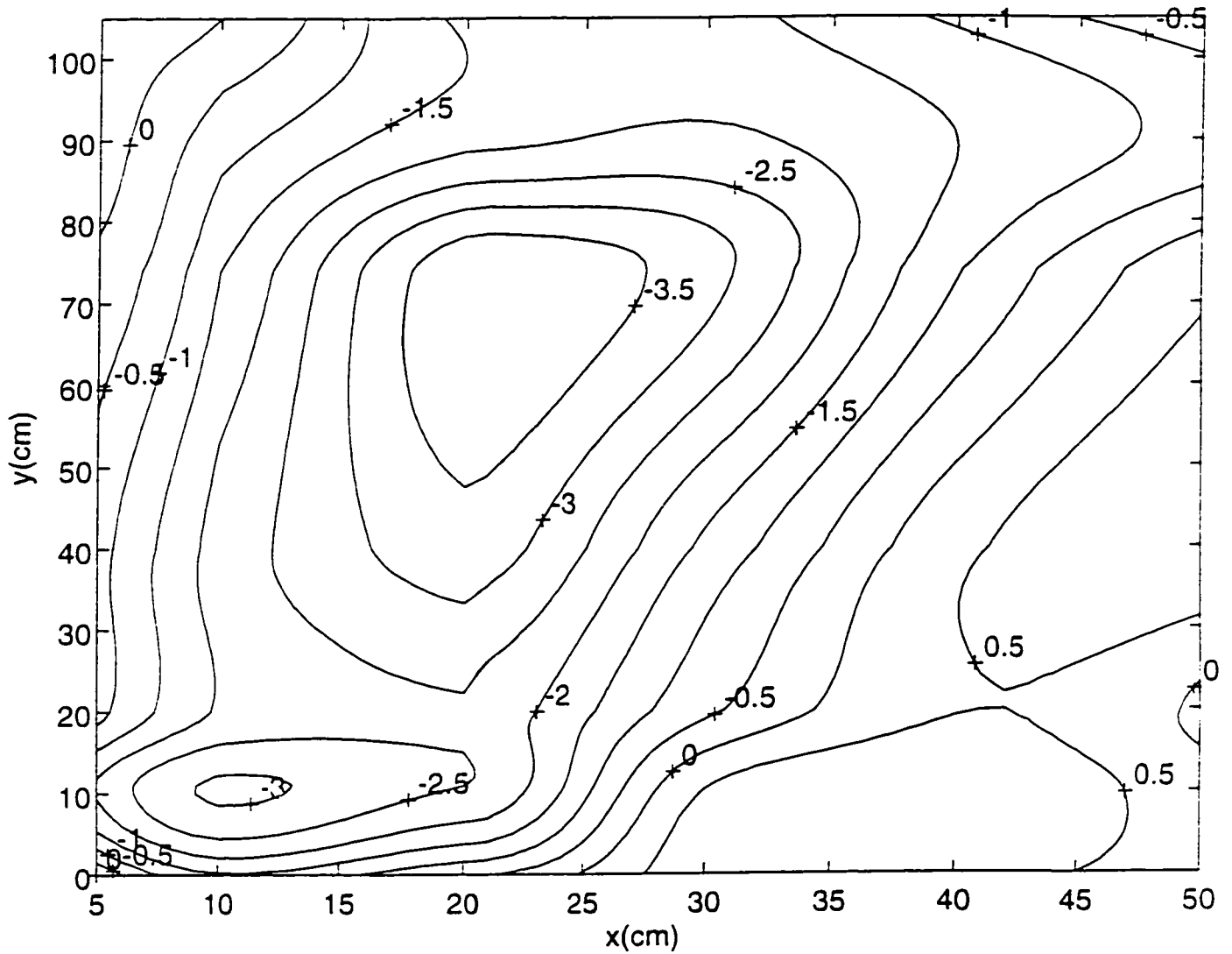


Fig. 5.22 3-D scour profile for

Flood=1:500 yr; End sill= 1:6; Maximum Scour (30,74)=-4.44 cm

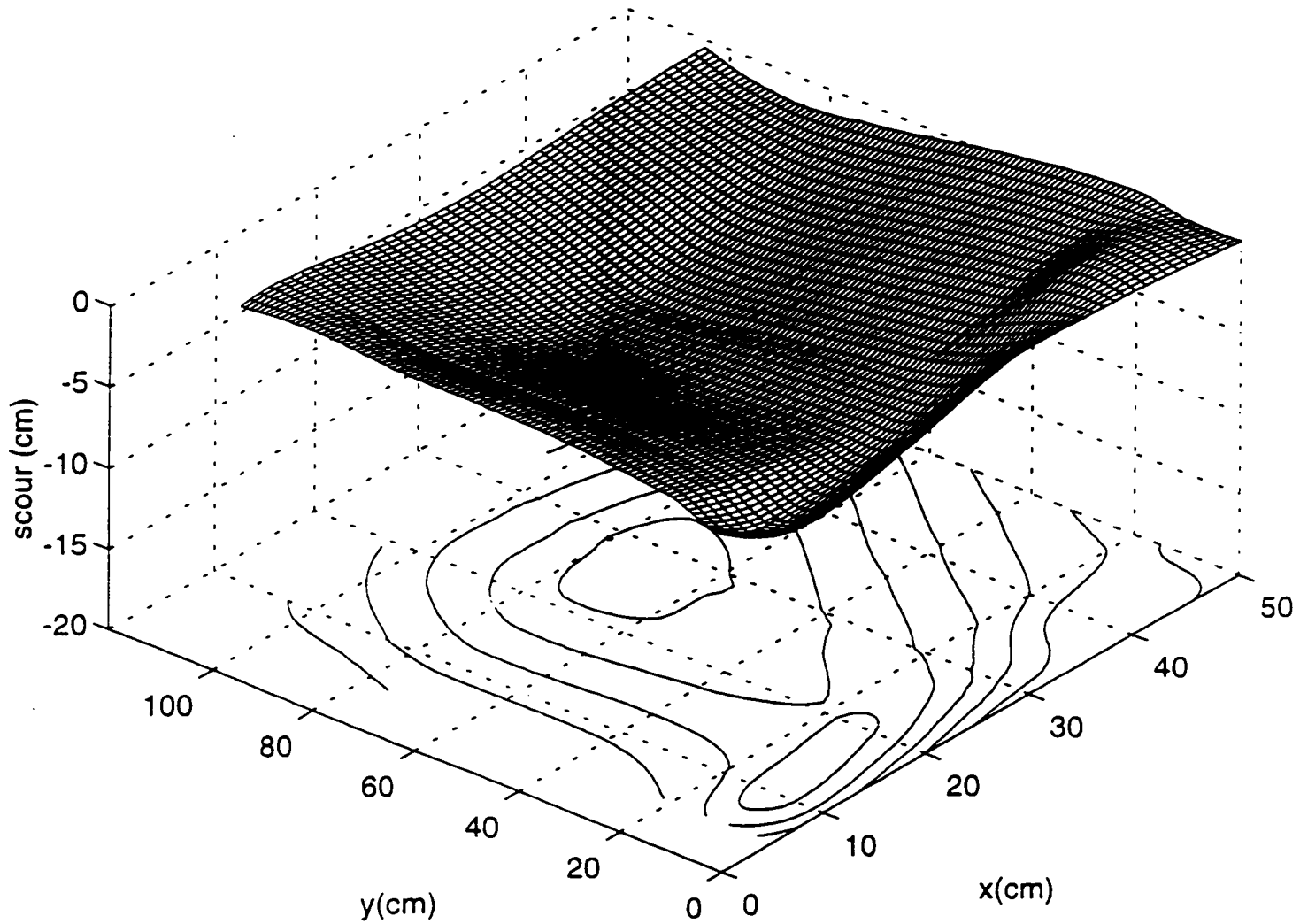


Fig. 5.23 Scour contours for

Flood=1:500 yr; End sill= 1:6; Maximum Scour (30,74)=-4.44 cm

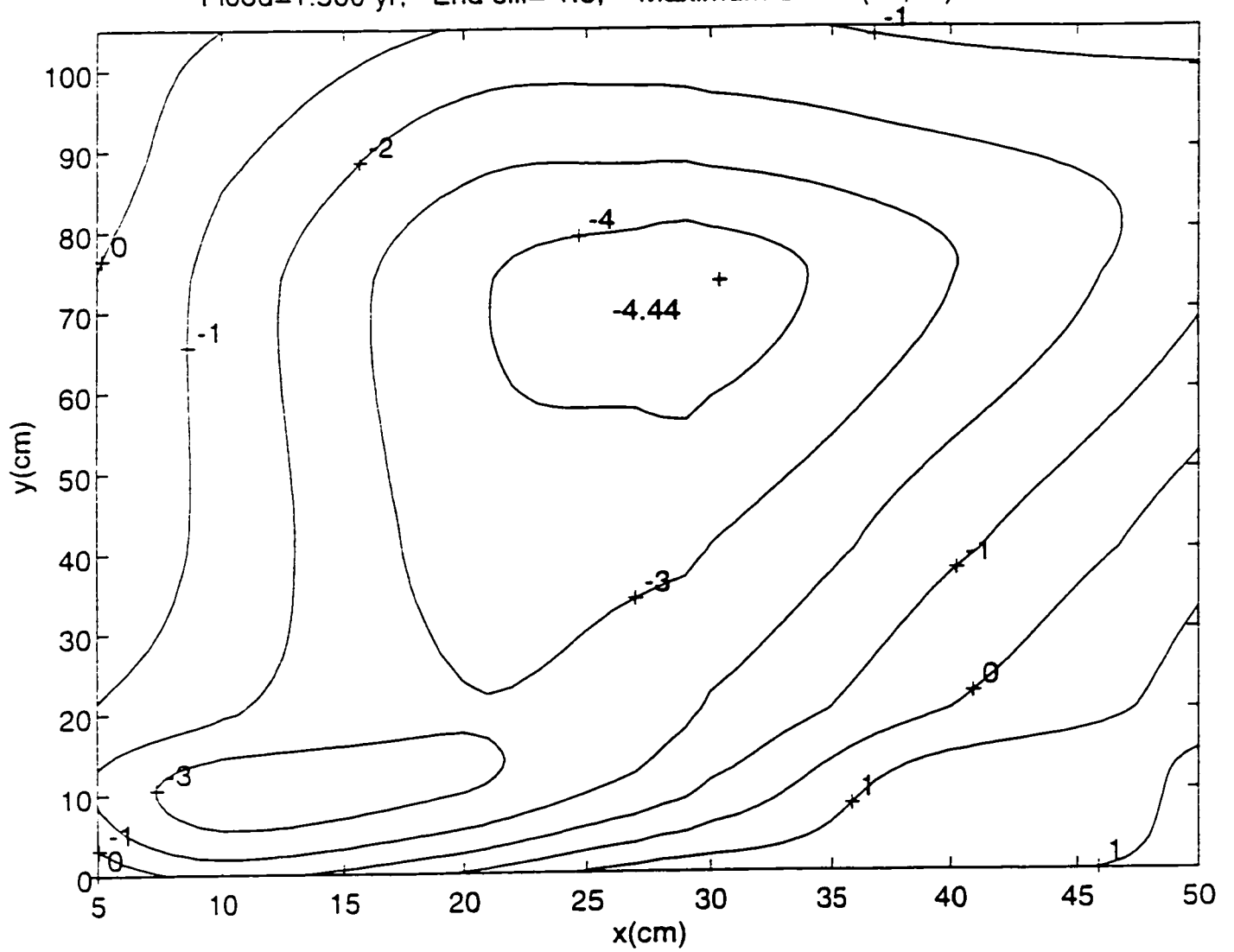


Fig. 5.24 3-D scour profile for

Flood=Hazel; End sill= 1:6; Maximum Scour (30,51)=-5.68 cm

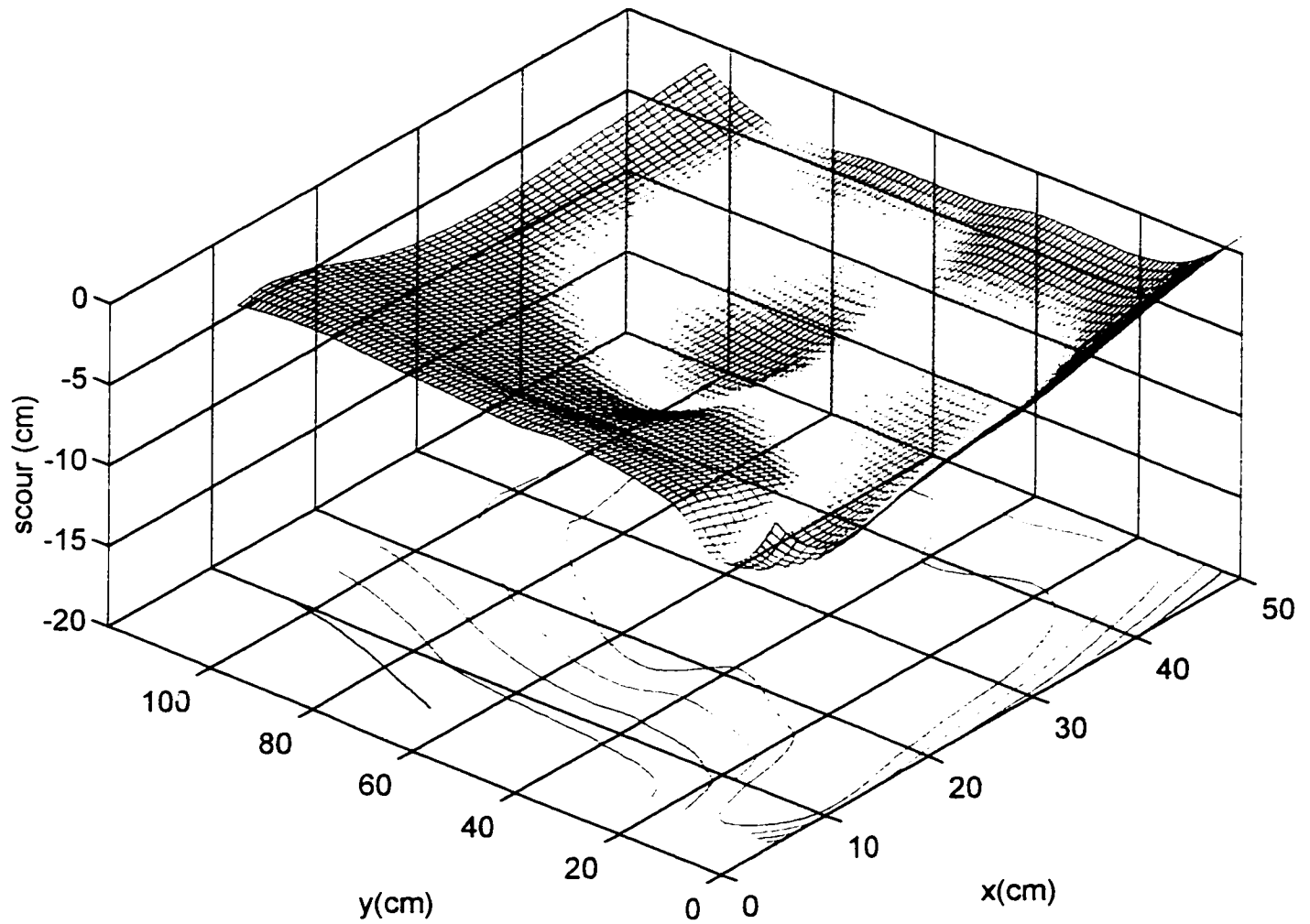


Fig. 5.25 Scour contours for

Flood=Hazel; End sill= 1:6; Maximum Scour (30,51)=-5.68 cm

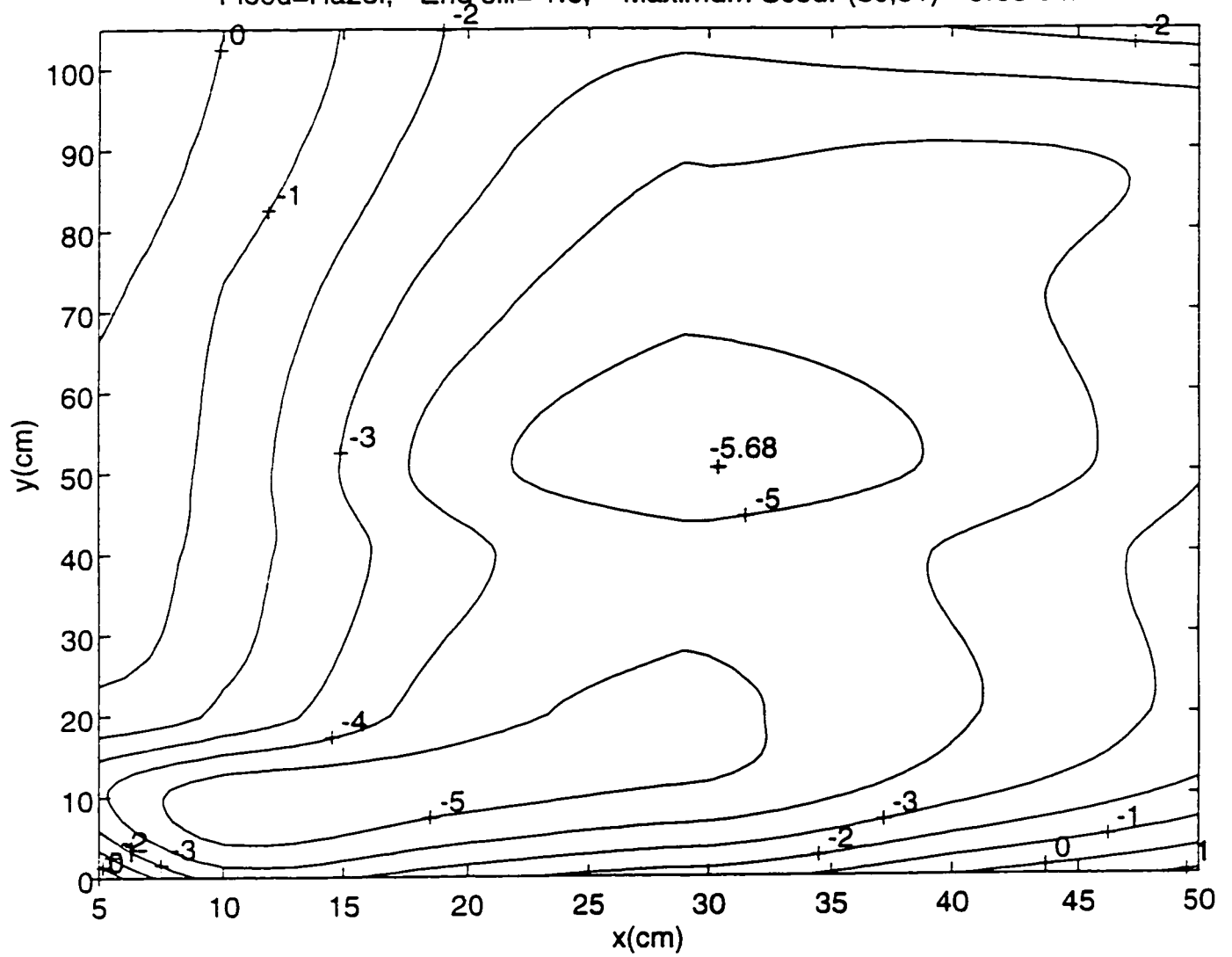


Fig. 5.26 3-D scour profile for

Flood=1:10,000 yr; End sill= 1:6; Maximum Scour (34,57)=-7.08 cm

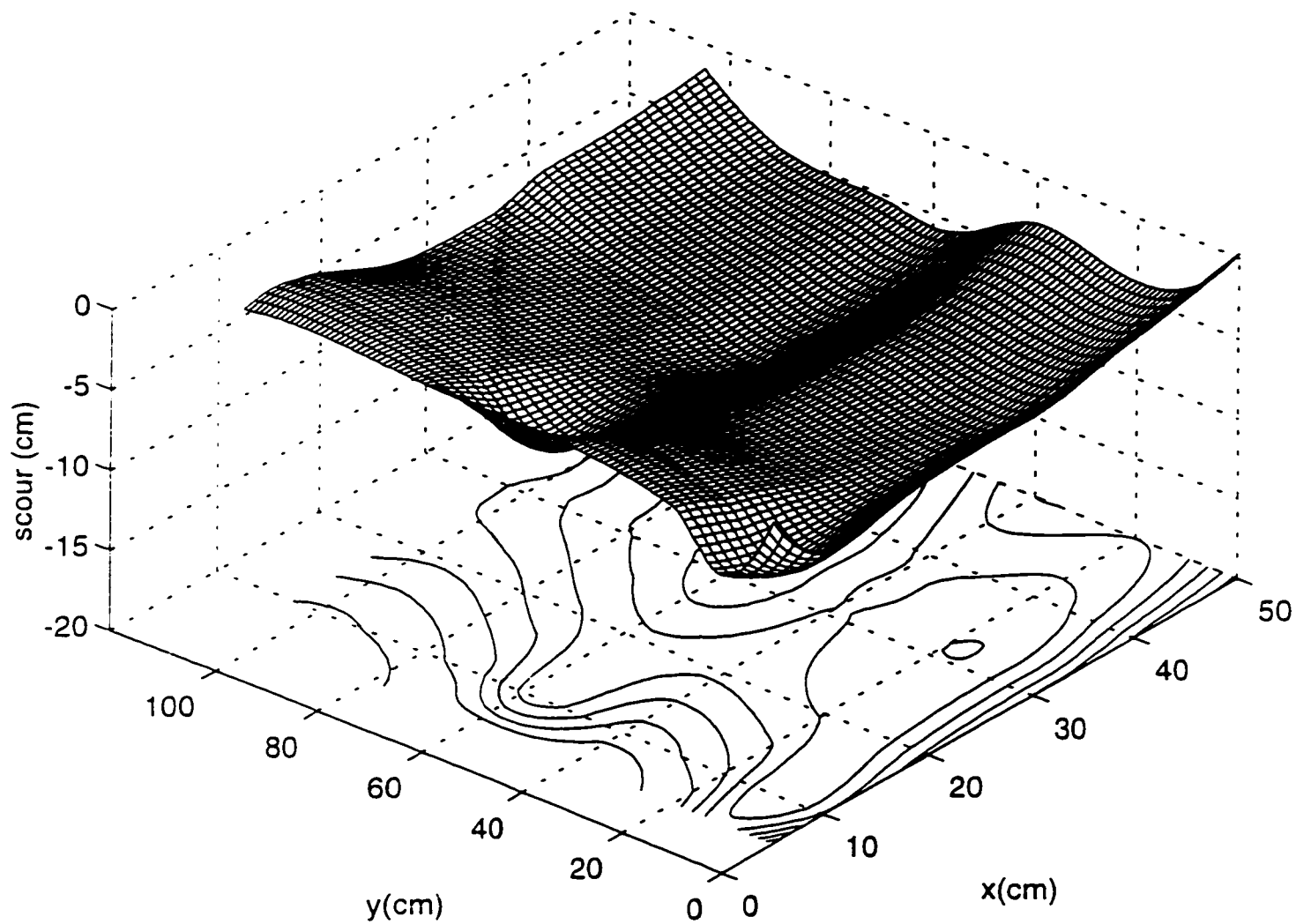


Fig. 5.27 Scour contours for

Flood=1:10,000 yr; End sill= 1:6; Maximum Scour (34,57)=-7.08 cm

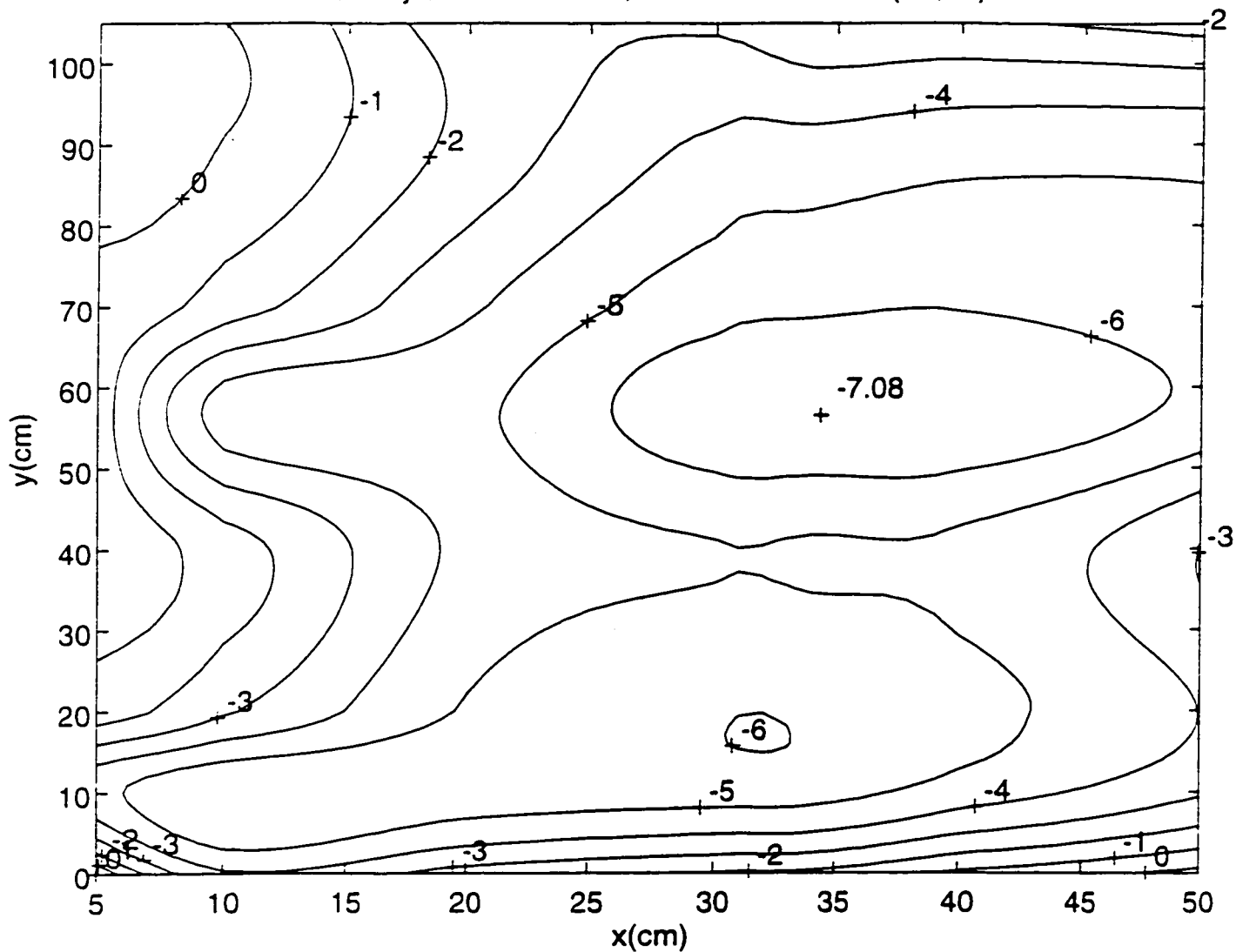


Fig. 5.28 3-D scour profile for

Flood= Hazel ; High T.W.L. ; End sill= 1:2 ; Max. Scour (27,46)=-11.0 cm

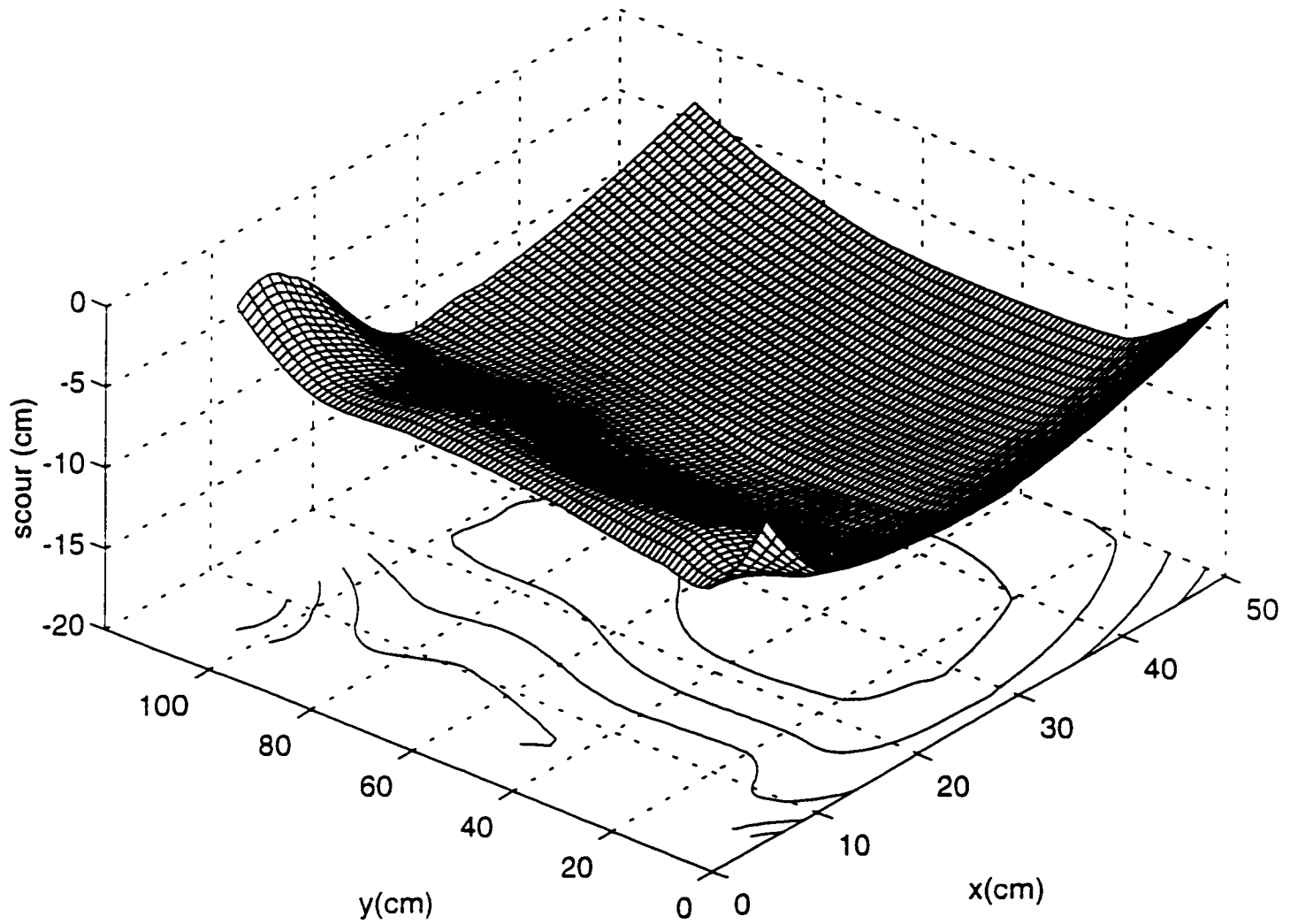


Fig. 5.29 Scour contours for

Flood= Hazel ; High T.W.L. ; End sill= 1:2 ; Max. Scour (27,64)=-11.0 cm

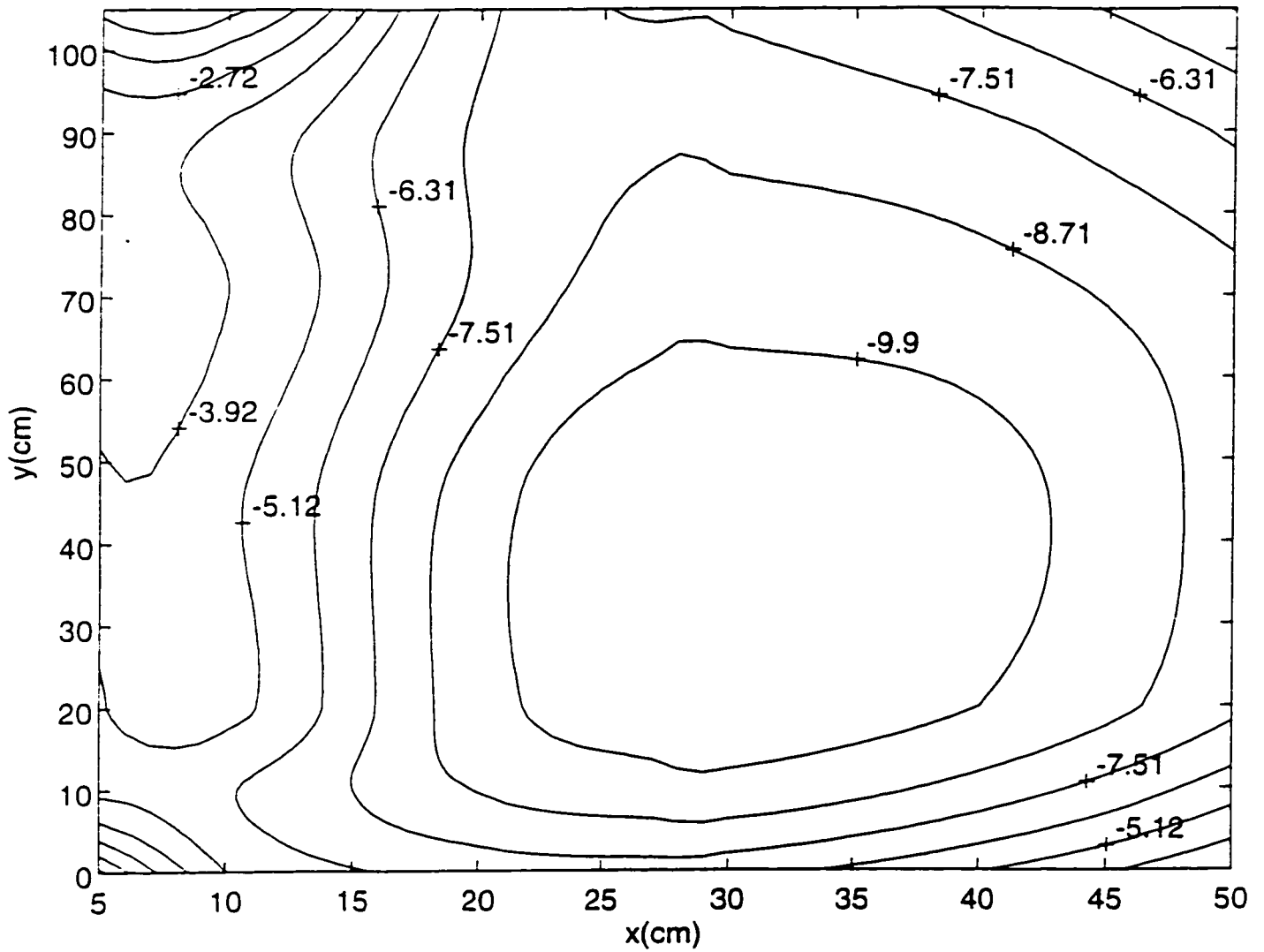


Fig. 5.30 3-D scour profile for

Flood= Hazel ; Low T.W.L. ; End sill= 1:2 ; Max. Scour (36,64)=-20.7 cm

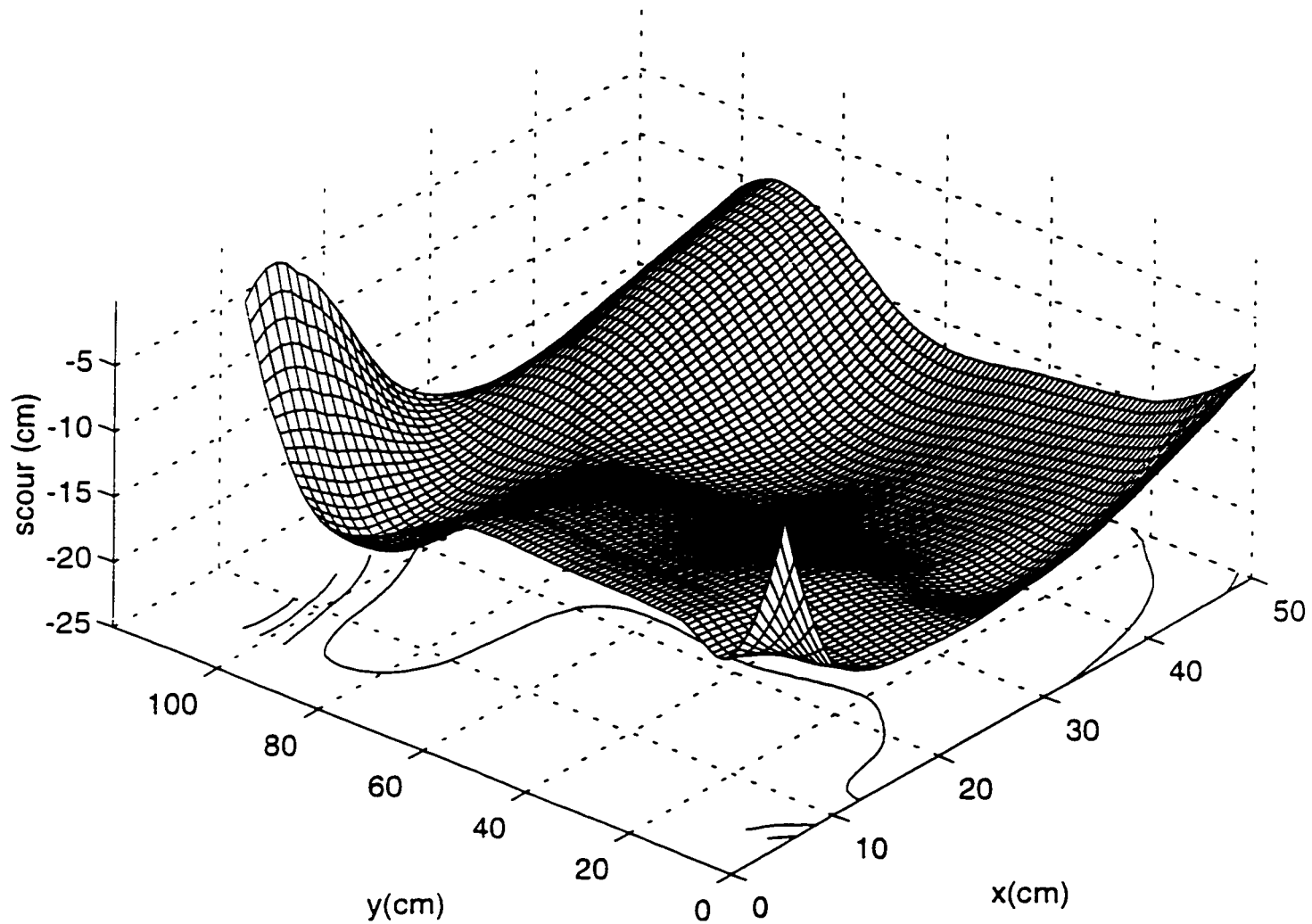


Fig. 5.31 Scour contours for

Flood= Hazel ; Low T.W.L. ; End sill= 1:2 ; Max. Scour (36,64)=-20.7 cm

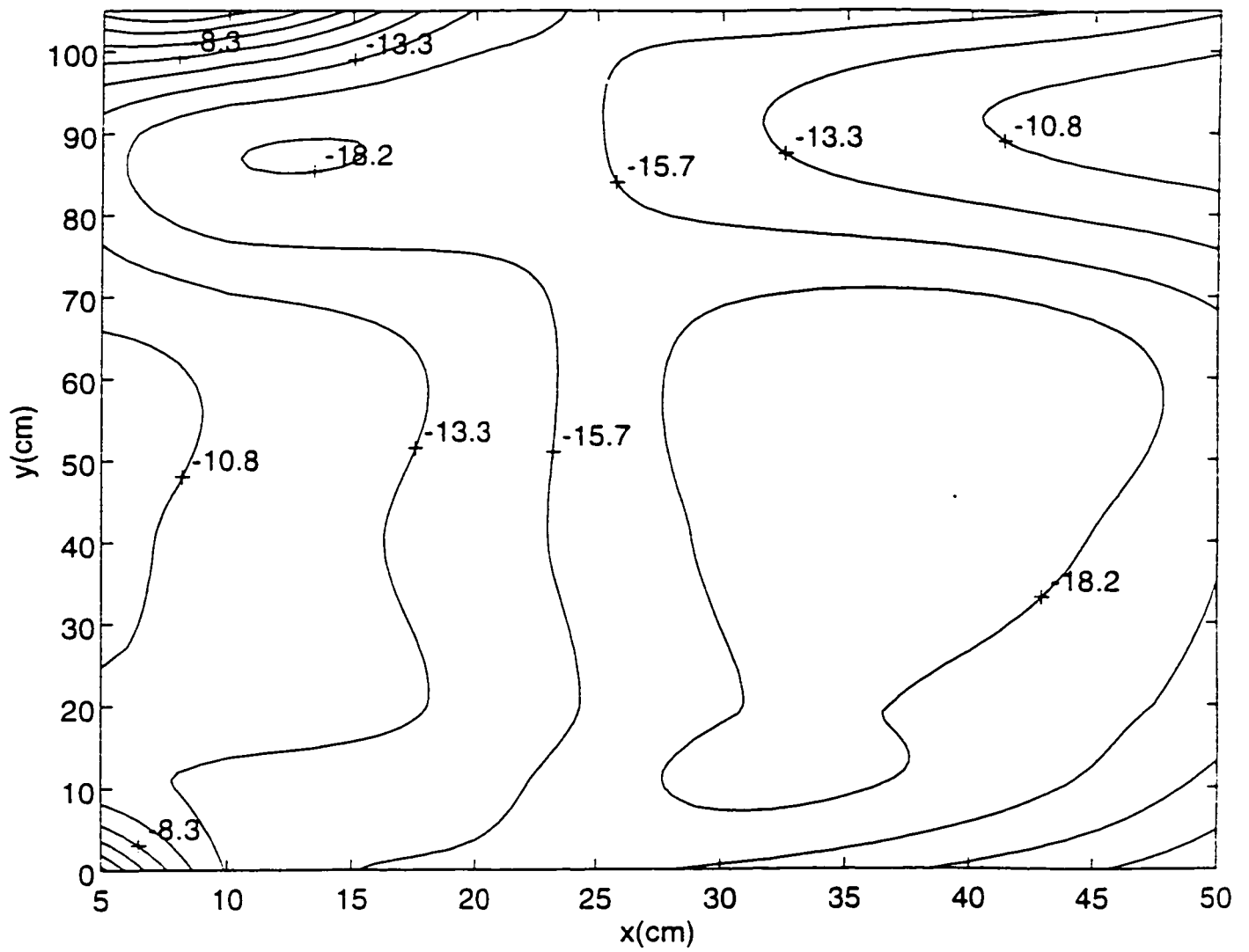


Fig. 5.32 3-D scour profile for

Flood= Hazel ; High T.W.L. ; End sill= 1:5 ; Max. Scour (30,64)=-4.92 cm

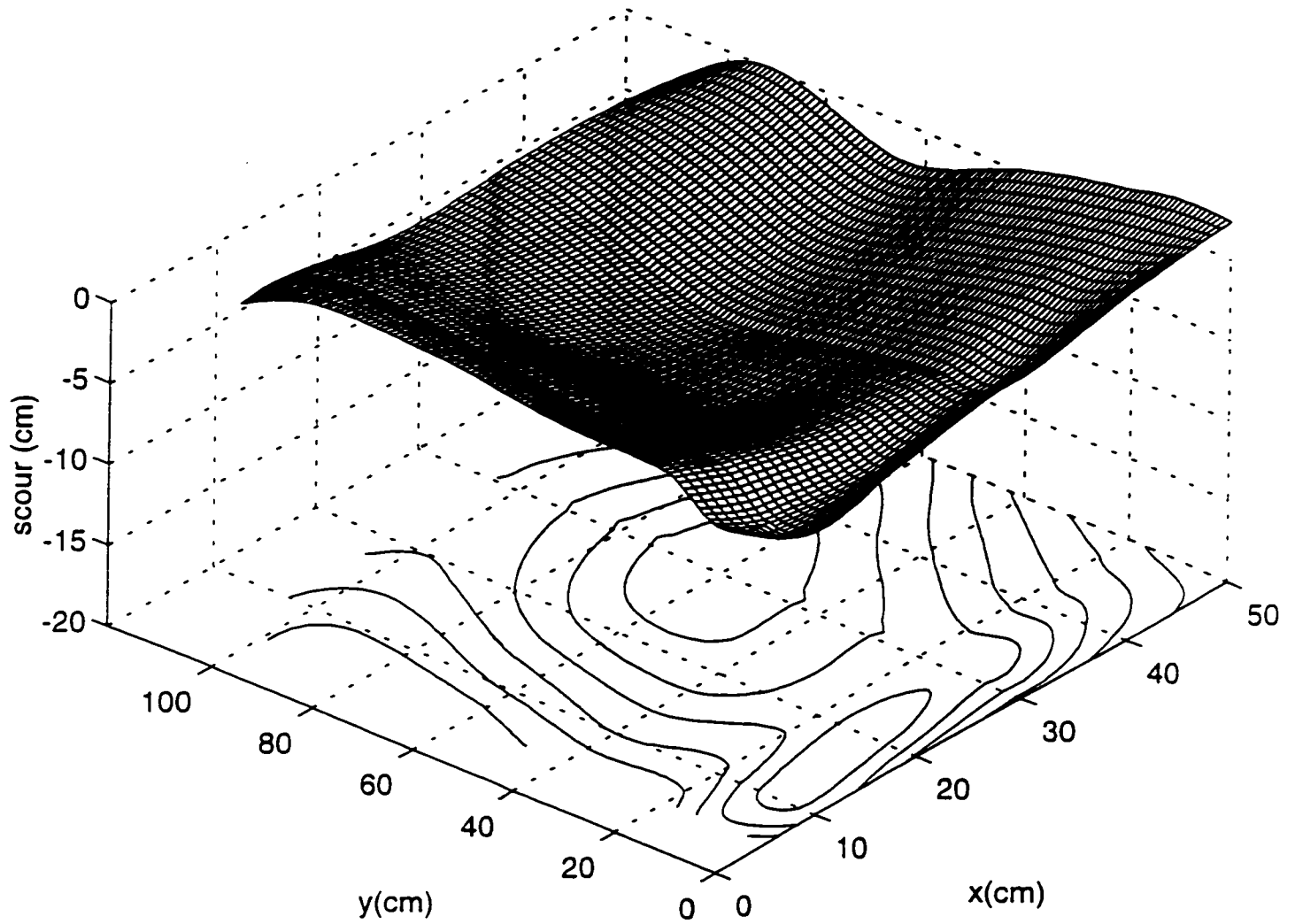


Fig. 5.33 Scour contours for

Flood= Hazel ; High T.W.L. ; End sill= 1:5 ; Max. Scour (30,64)=-4.92 cm

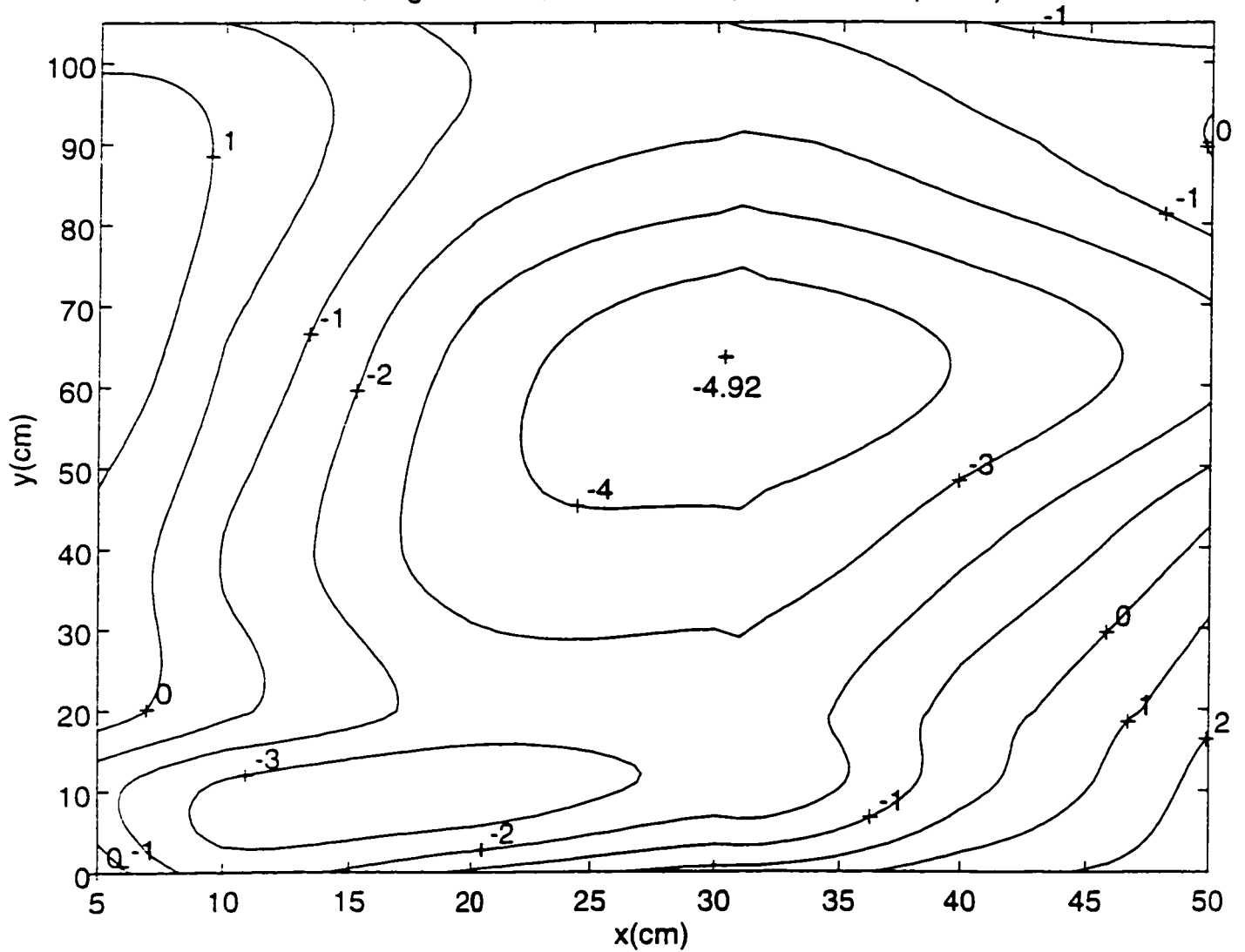


Fig. 5.34 3-D scour profile for

Flood= Hazel ; Low T.W.L. ; End sill= 1:5 ; Max. Scour (33,62)=-9.85 cm

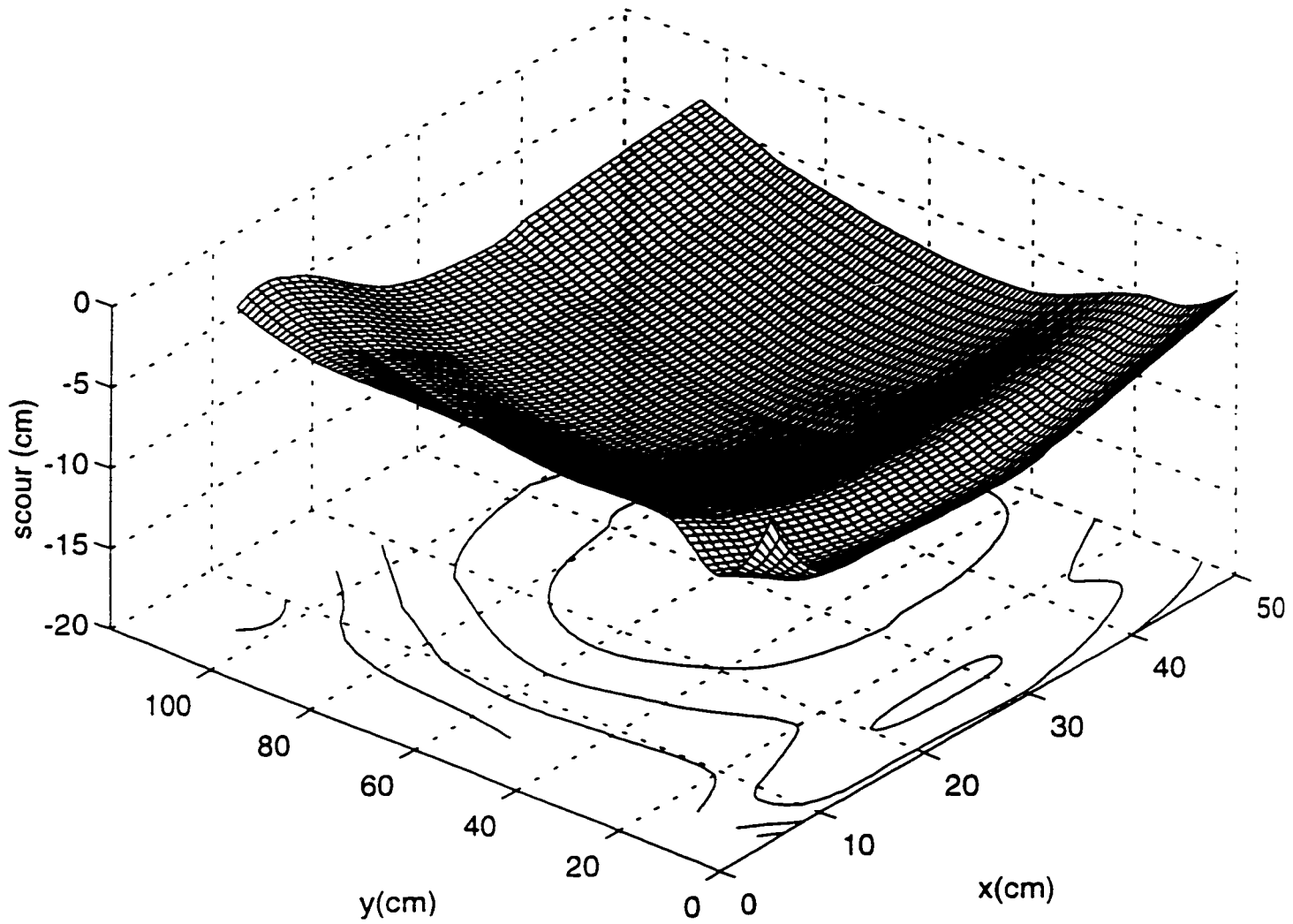
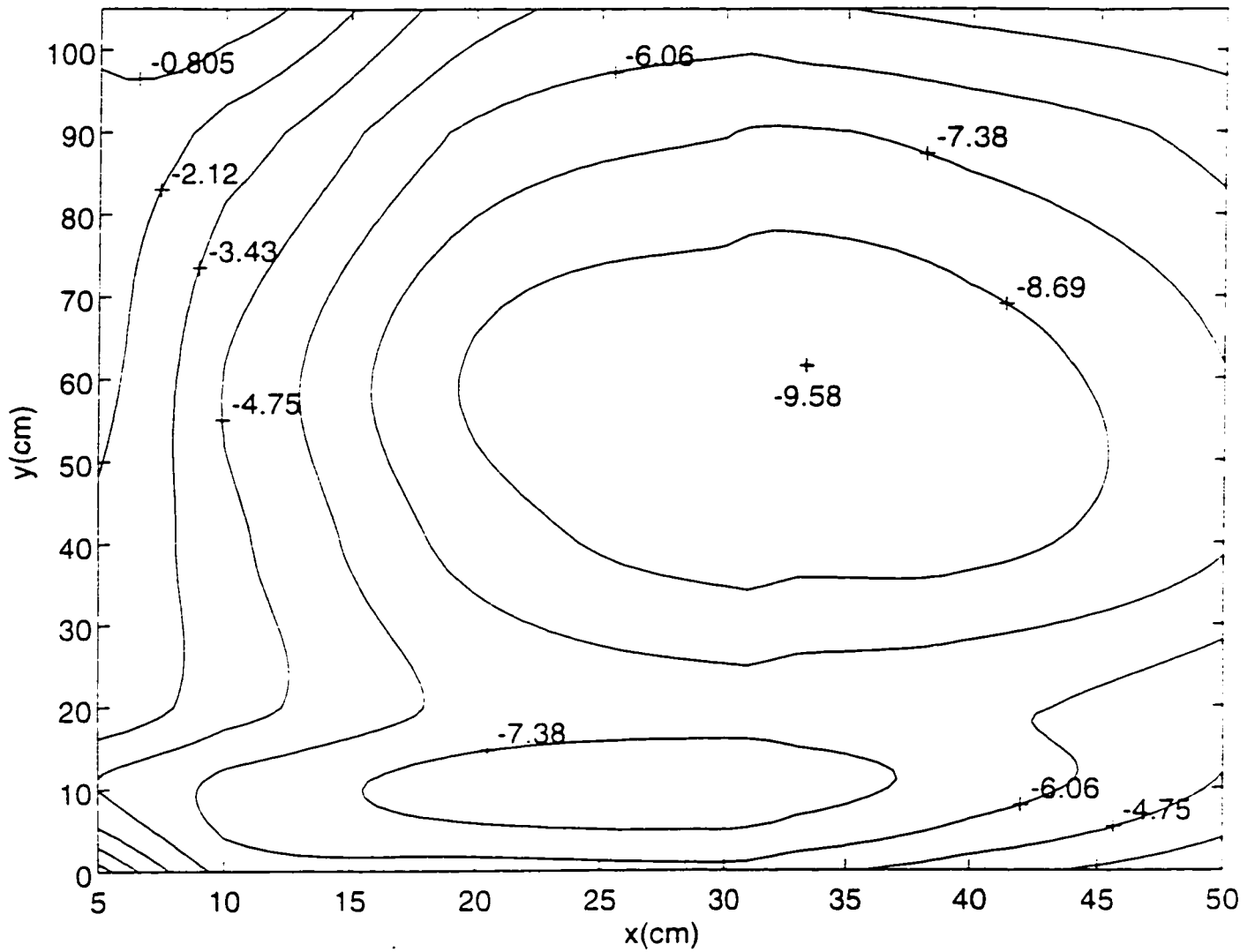


Fig. 5.35 Scour contours for

Flood= Hazel ; Low T.W.L. ; End sill= 1:5 ; Max. Scour (33,62)=-9.85 cm



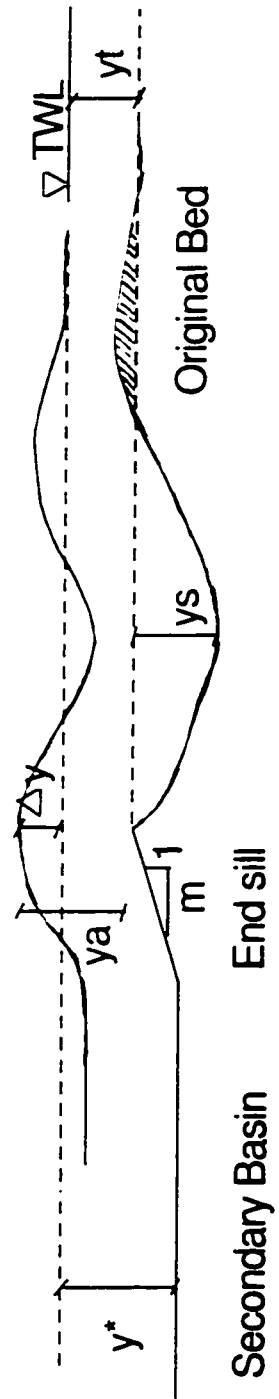


Figure 5.36 Effect of TWL on the bed scour



Fig. 5.37 Maximum scour depth for Hazel flood, end sill 1V:2H and standard tailwater level



Fig. 5.38 Maximum scour depth for Hazel flood, end sill 1V:2H and high tailwater level

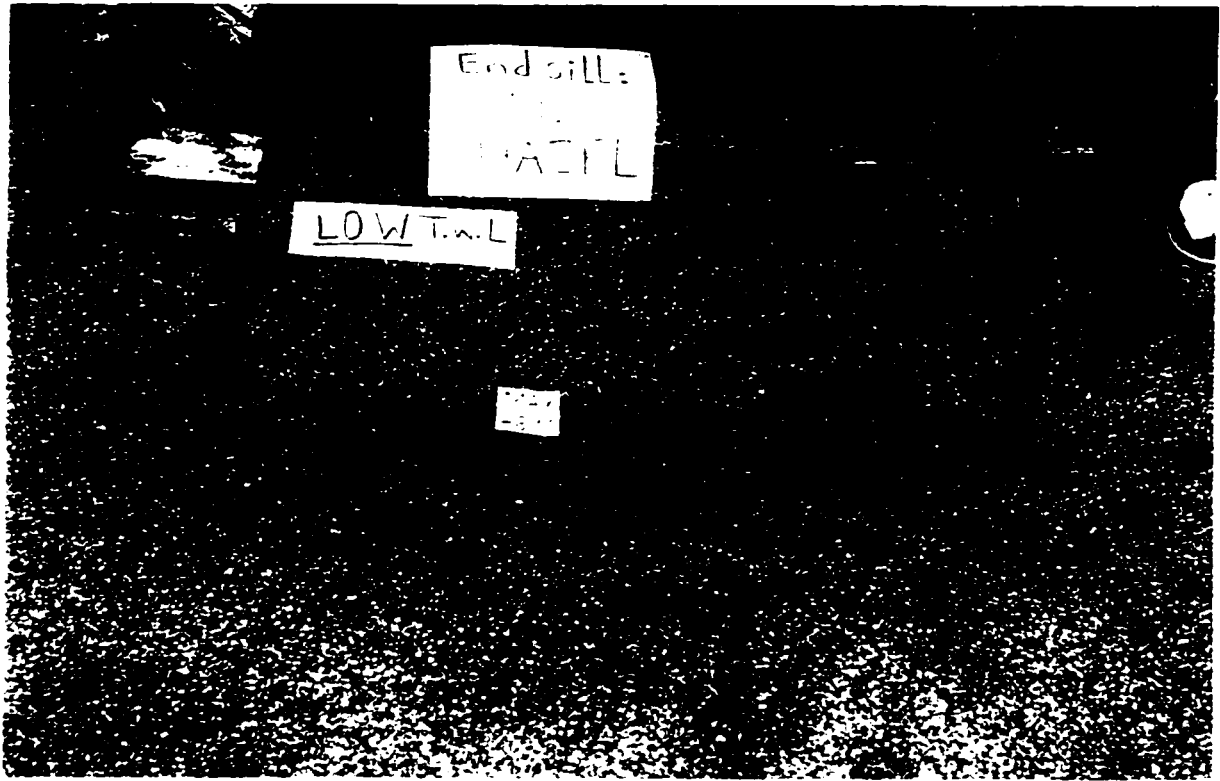


Fig. 5.39 Maximum scour depth for Hazel flood, end sill 1V:2H and standard tailwater level

Fig. 5.40

Velocity Distributions over the S.S.B.
End sill= 1:6 ; d= 0.2 Depth

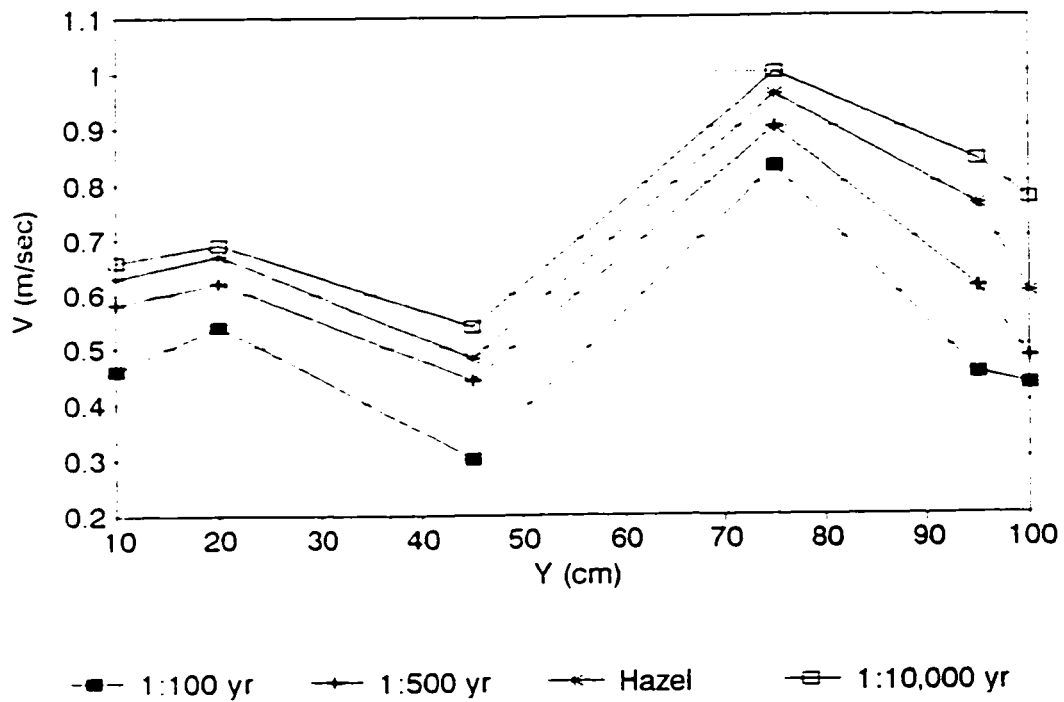


Fig. 5.41

Velocity Distributions over the S.S.B.
End sill= 1:6 ; d= 0.5 Depth

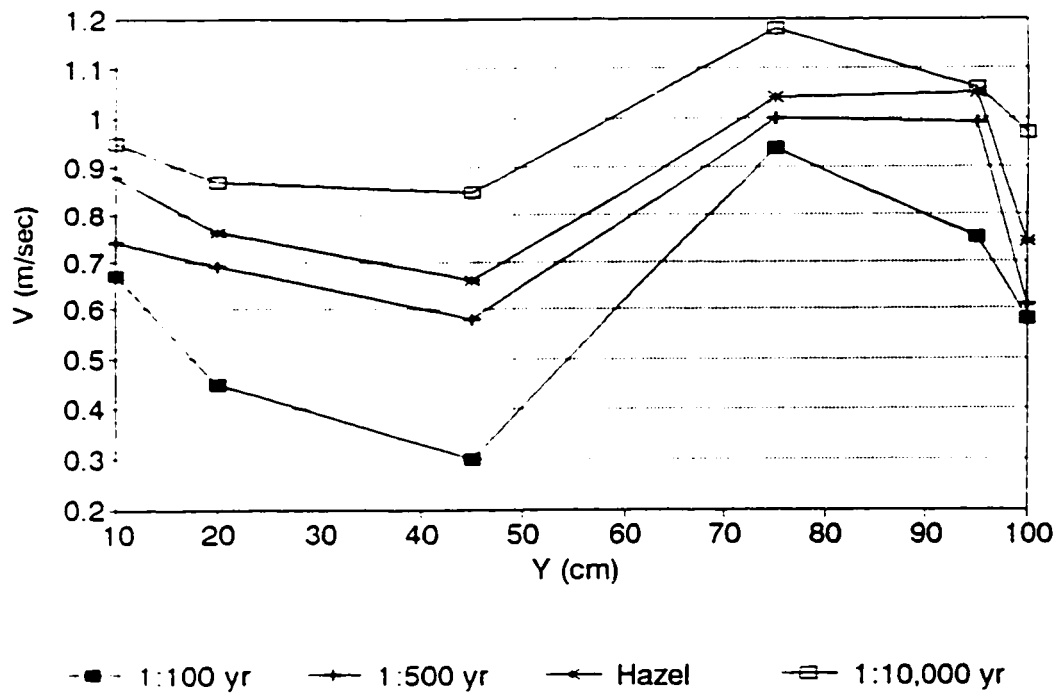


Fig. 5.43

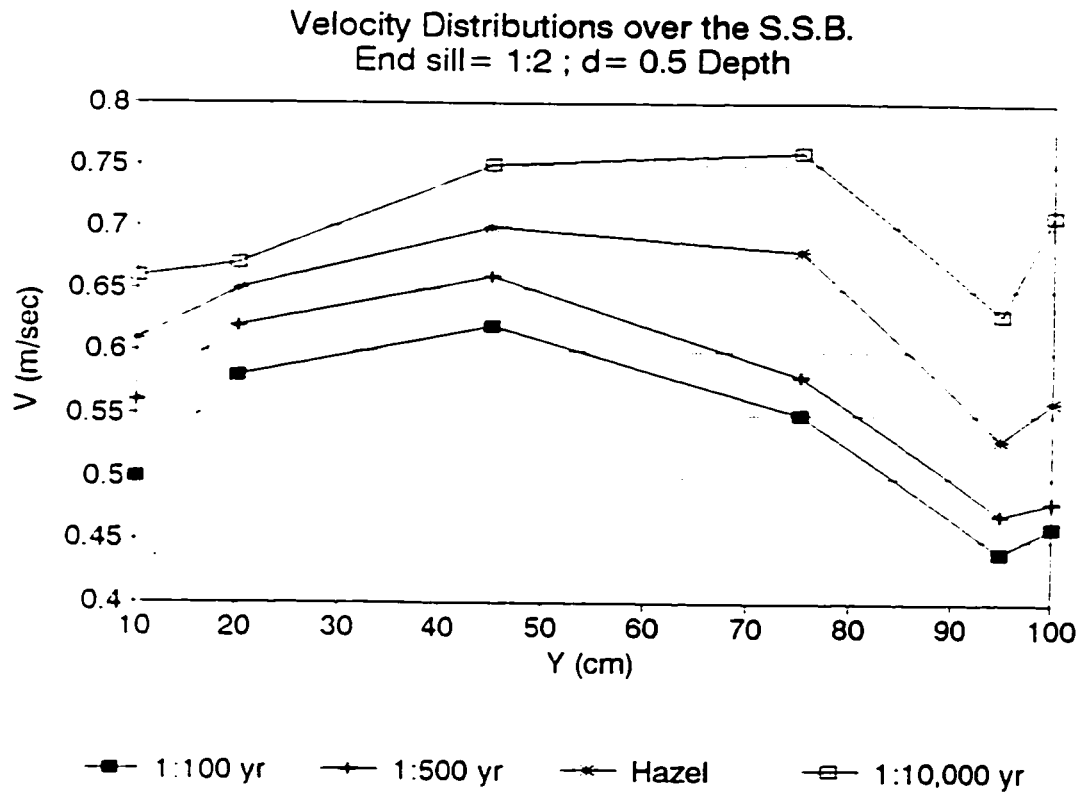


Fig. 5.42

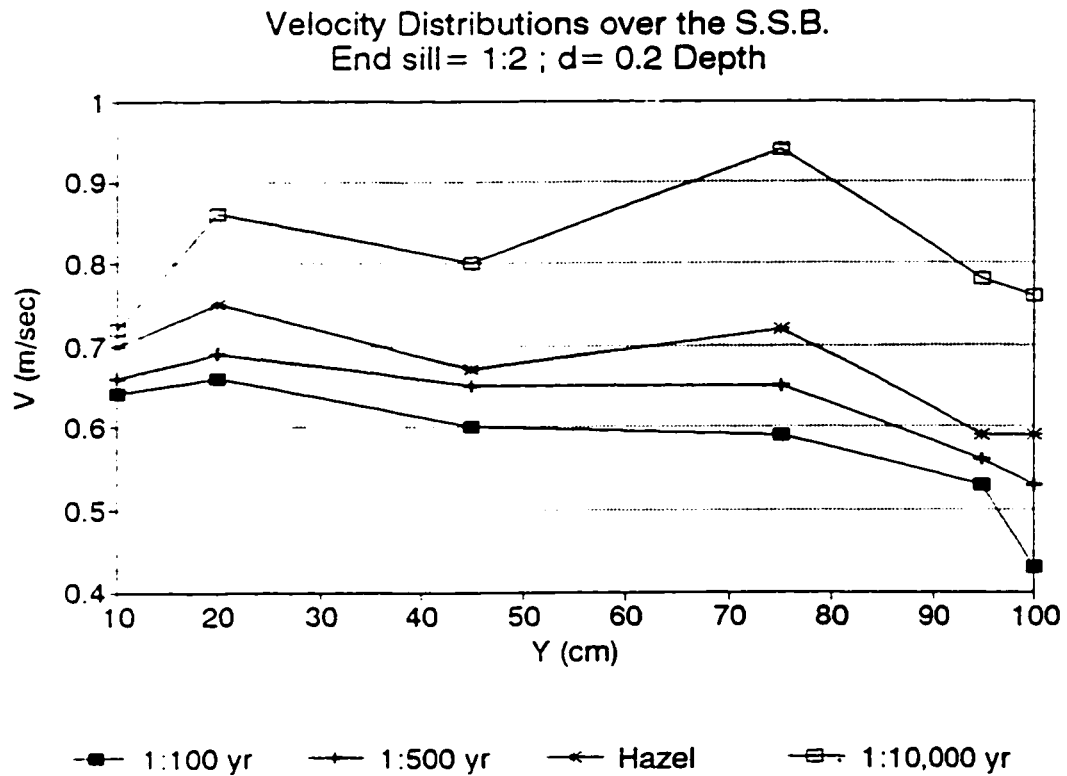


Fig. 5.44

Velocity Distributions over the End Sill:
End sill = 1:6 ; d = 0.2 Depth

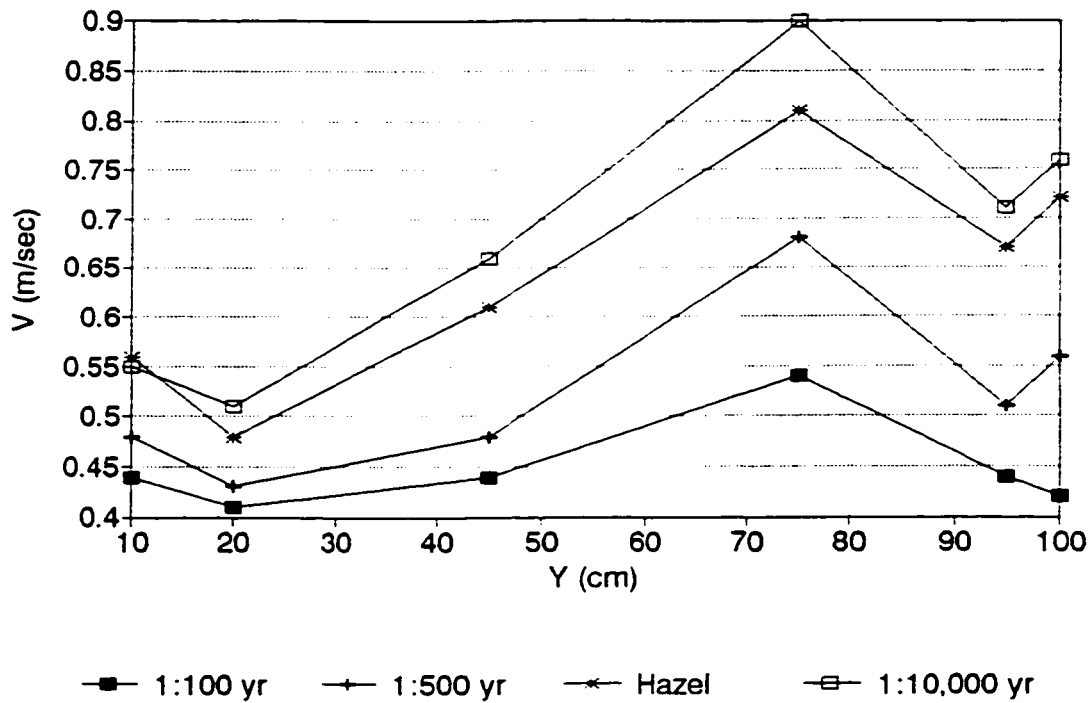


Fig. 5.45

Velocity Distributions over the End Sill:
End sill = 1:6 ; d = 0.5 Depth

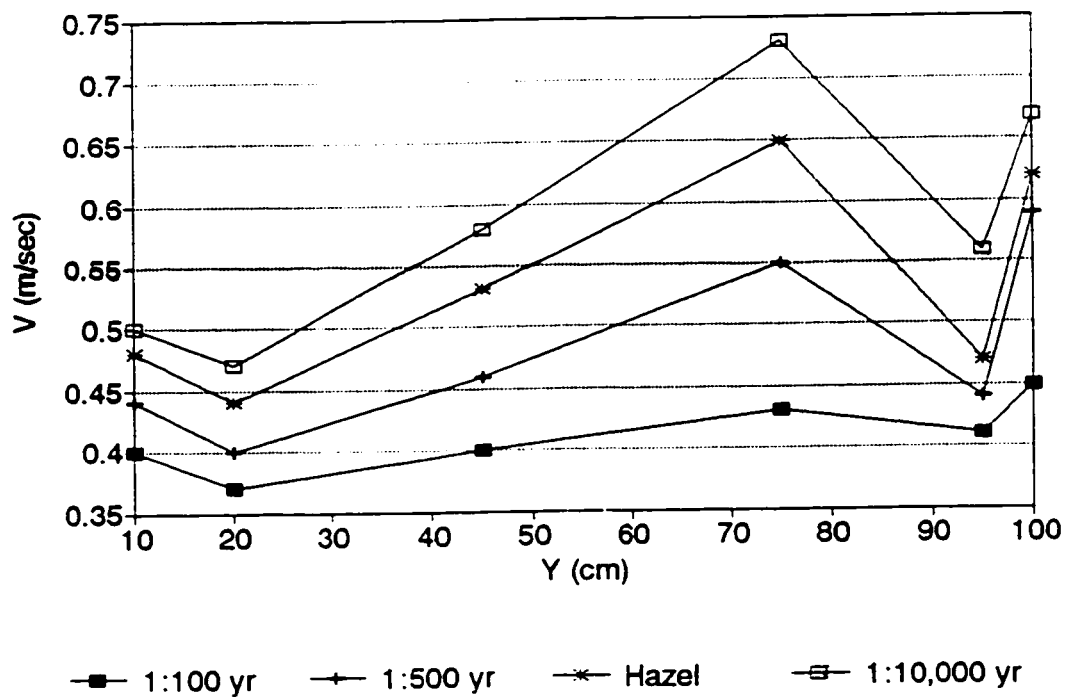


Fig. 5.46

Velocity Distributions over the End Sill:
End sill = 1:6 ; d = 0.8 Depth

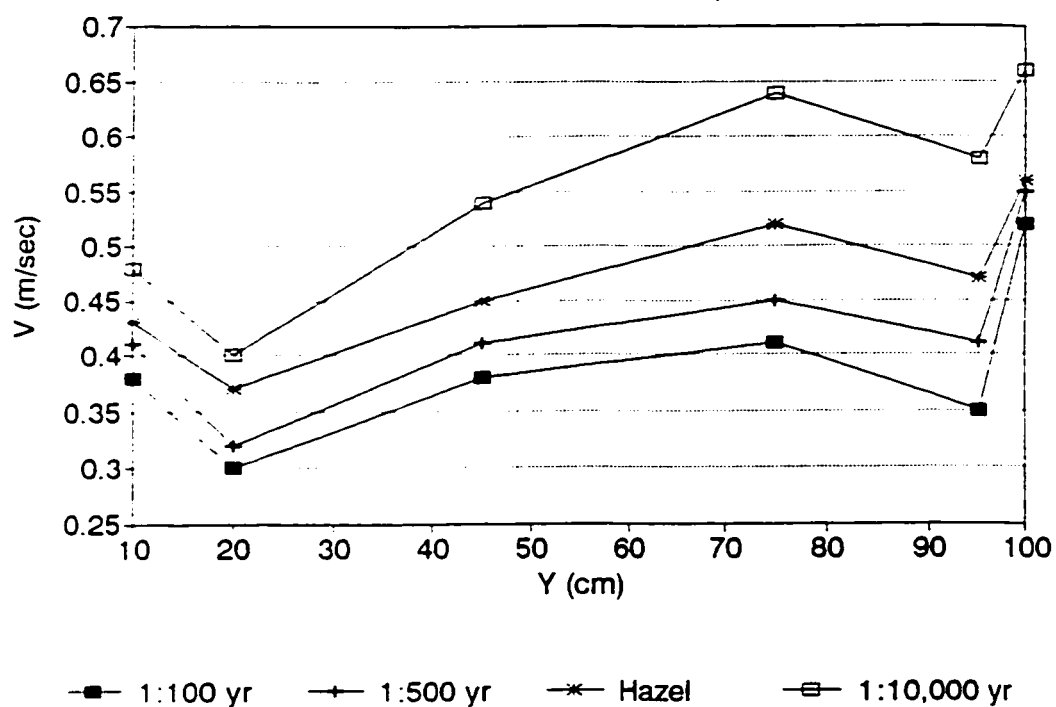


Fig. 5.47

Velocity Distributions over the End Sill:
End sill = 1:2 ; d = 0.2 Depth

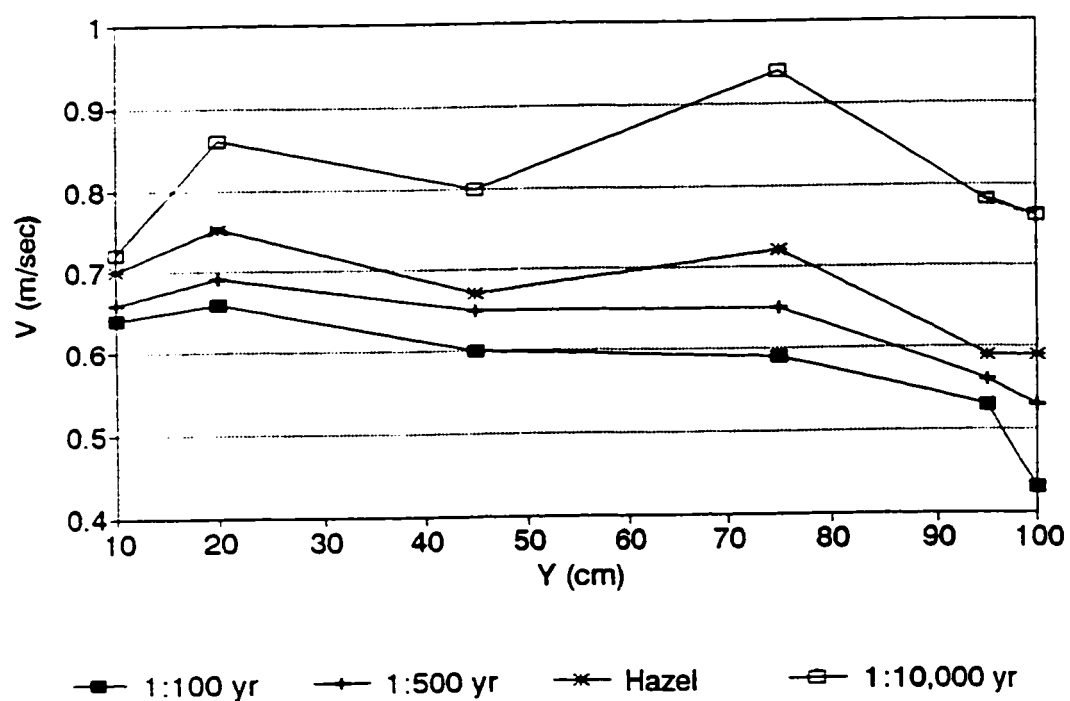


Fig. 5.48

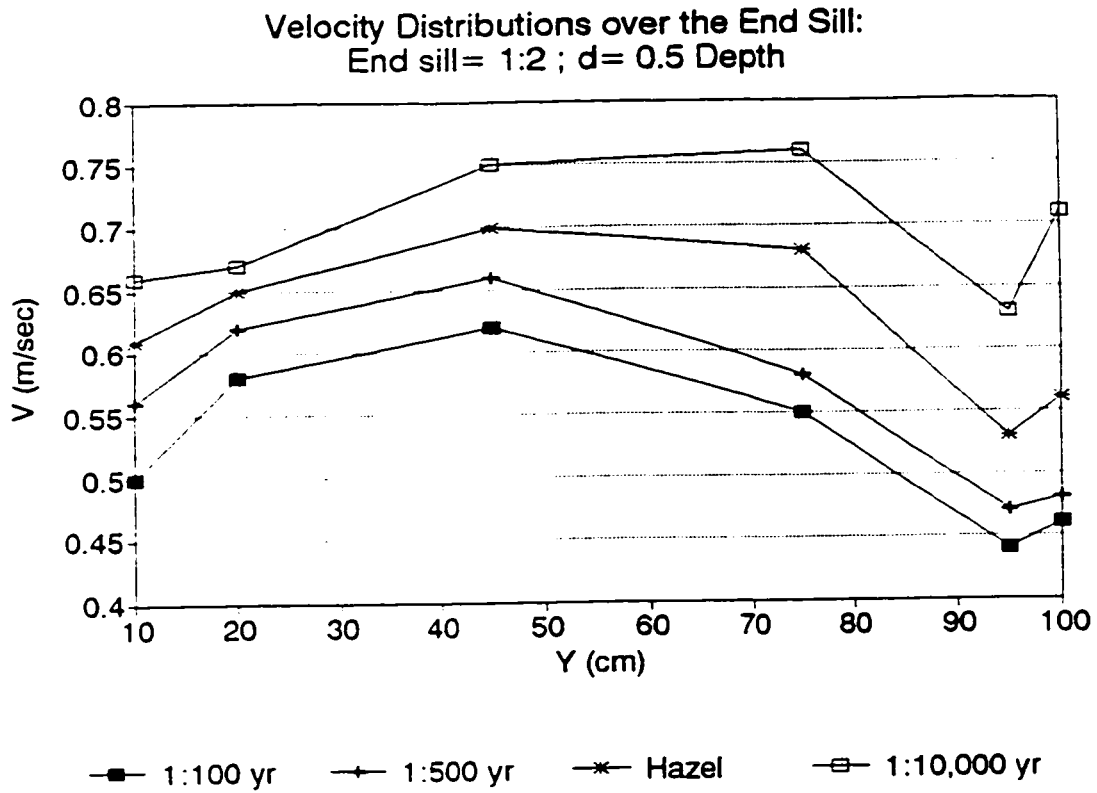


Fig. 5.49

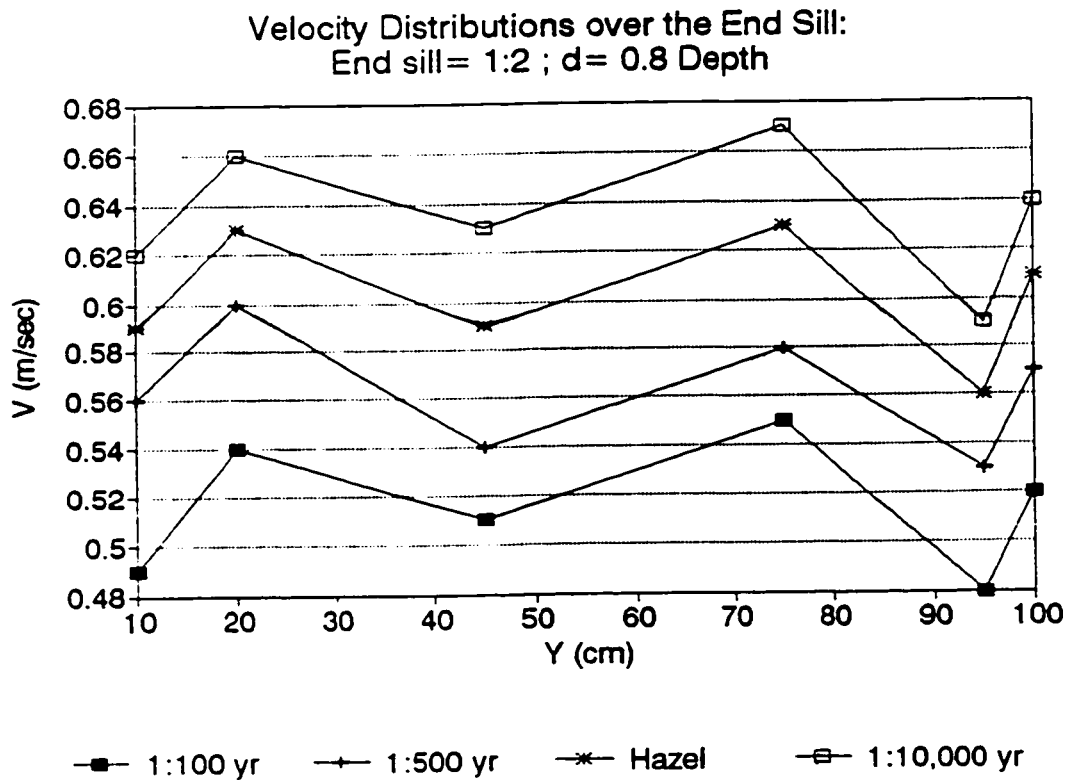


Fig. 5.50

Velocity Distributions over the S.S.B.
End sill = 1:6 ; d = 0.2 Depth

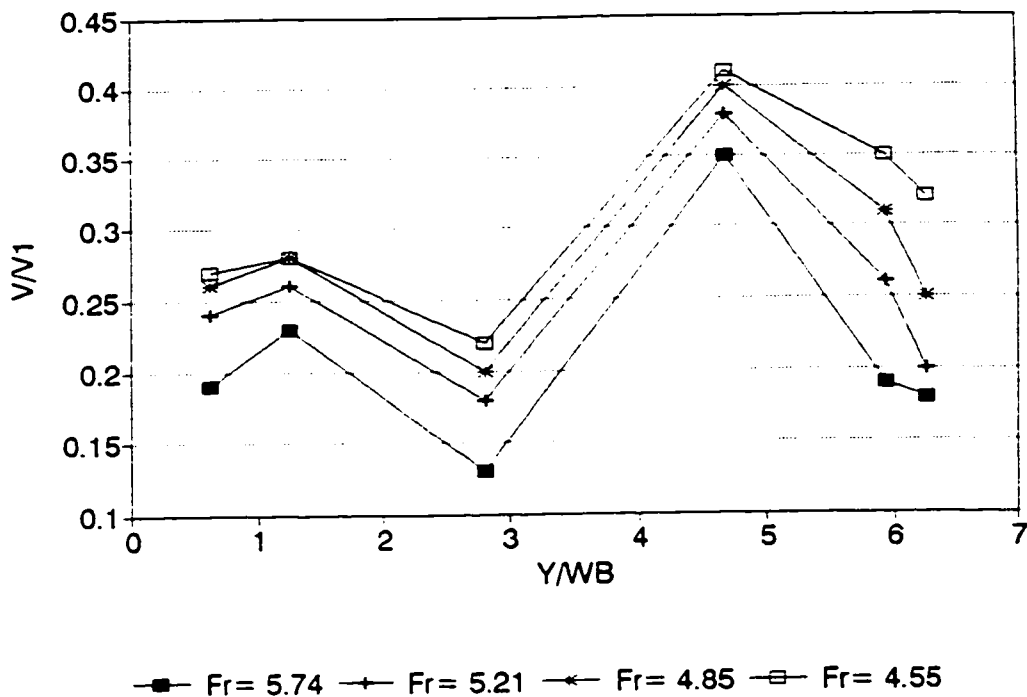


Fig. 5.51

Velocity Distributions over the S.S.B.
End sill = 1:6 ; d = 0.5 Depth

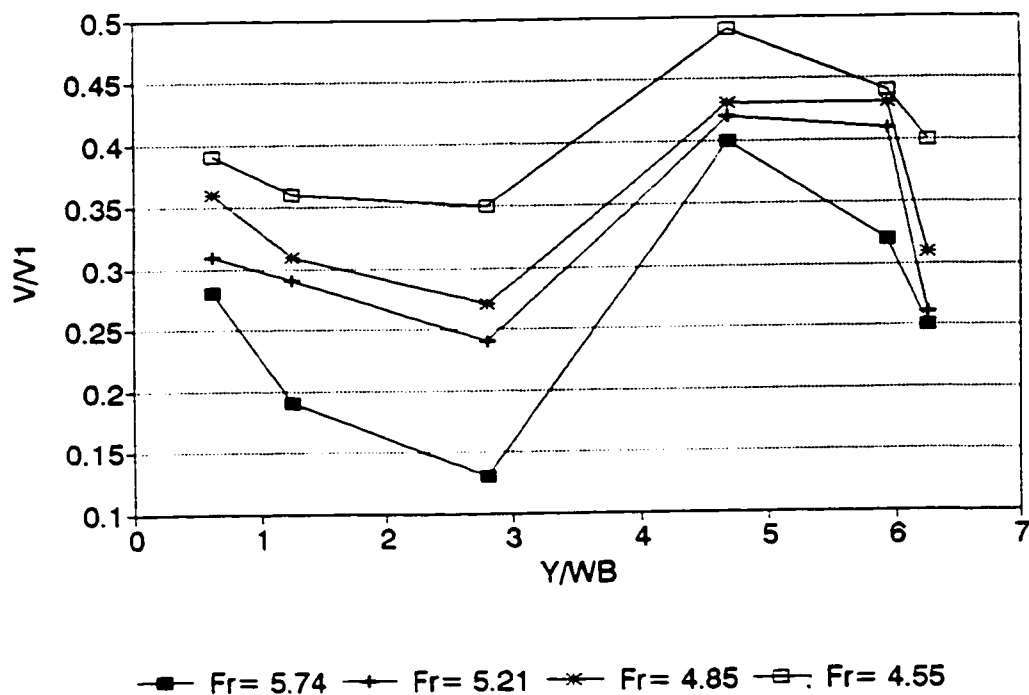


Fig. 5.52

Velocity Distributions over the End Sill:
End sill = 1:6 ; d = 0.8 Depth

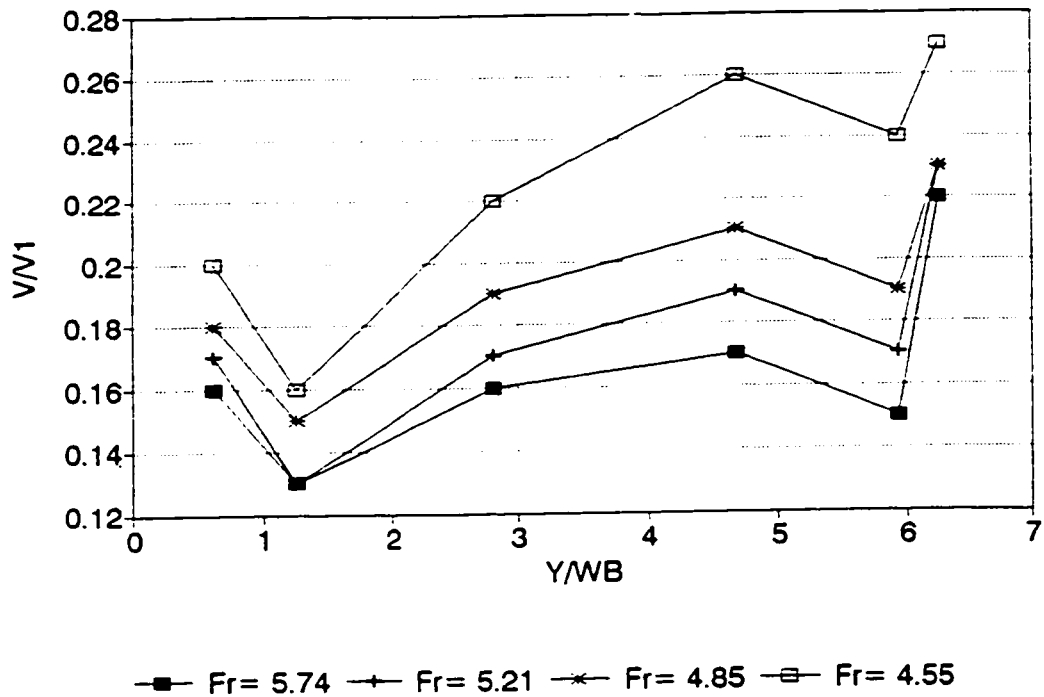


Fig. 5.53

Velocity Distributions over the End Sill:
End sill = 1:6 ; d = 0.5 Depth

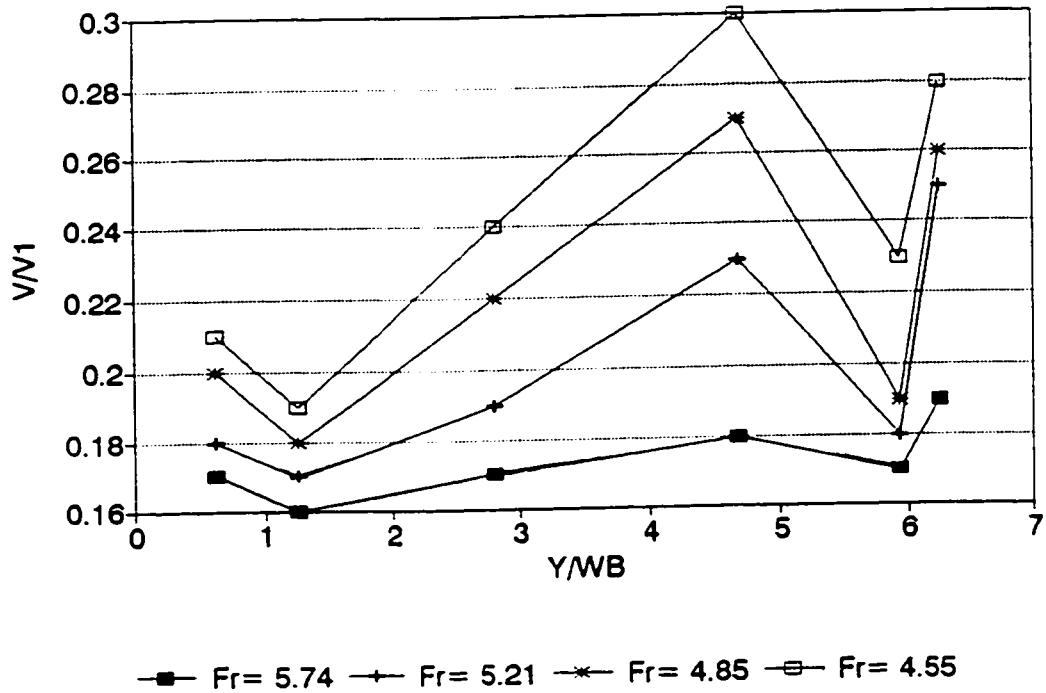
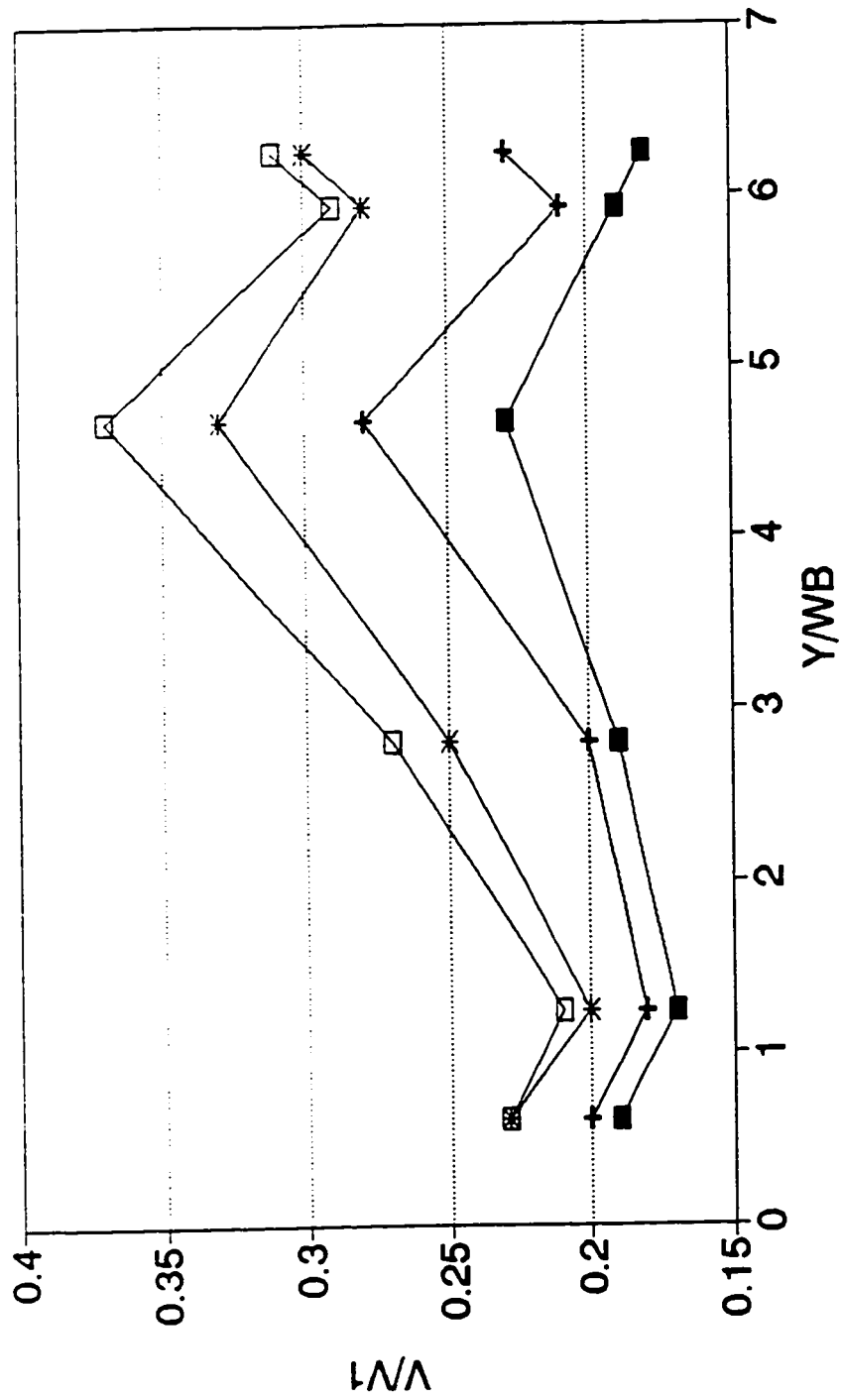


Fig. 5.54

Velocity Distributions over the End Sill:
End sill = 1:6 ; $d = 0.2$ Depth



\blacksquare — $Fr = 5.74$ — $+$ — $Fr = 5.21$ — $*$ — $Fr = 4.85$ — \square — $Fr = 4.55$

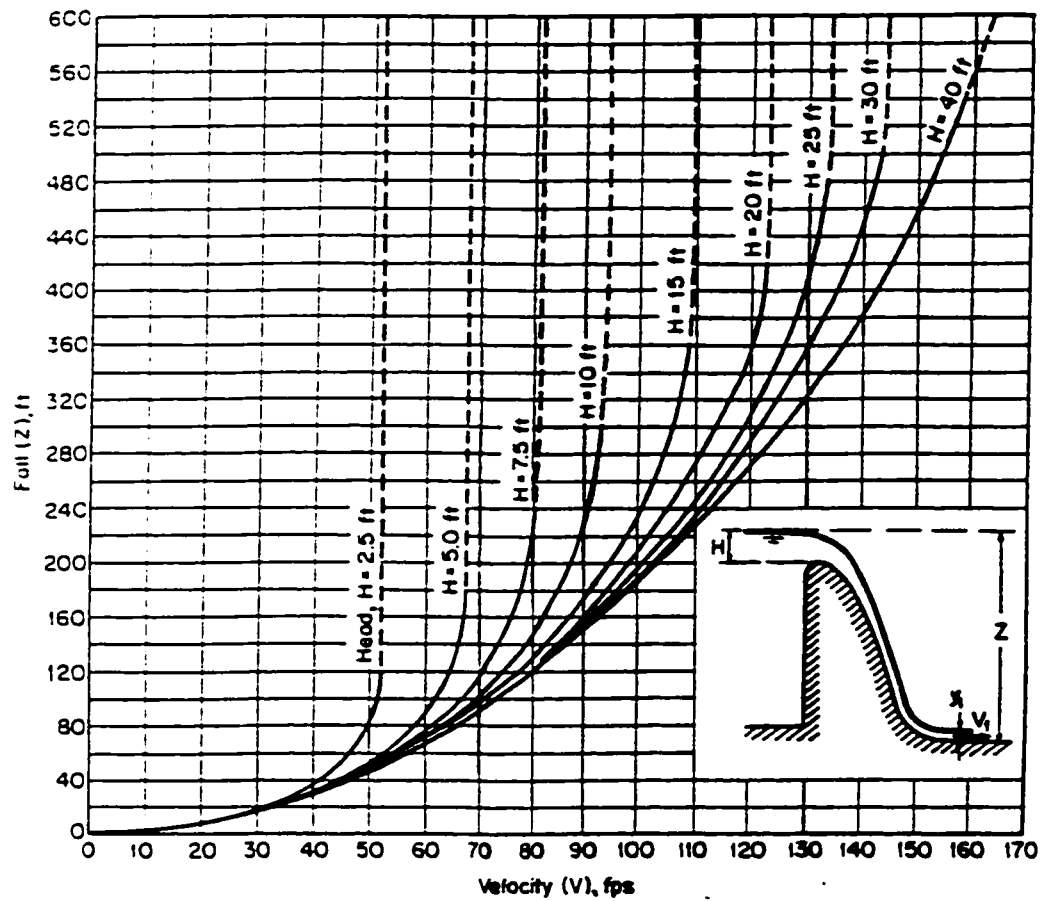


Fig. 5.55 Curves for the determination of velocity at the toe of spillways with slopes 1 on 0.6 to 0.8

Fig. 5.56

Correlation Length & Total Pressure for
Sill = 1:5 ; 1:10 yr ; Lateral ; $x = 12$ cm

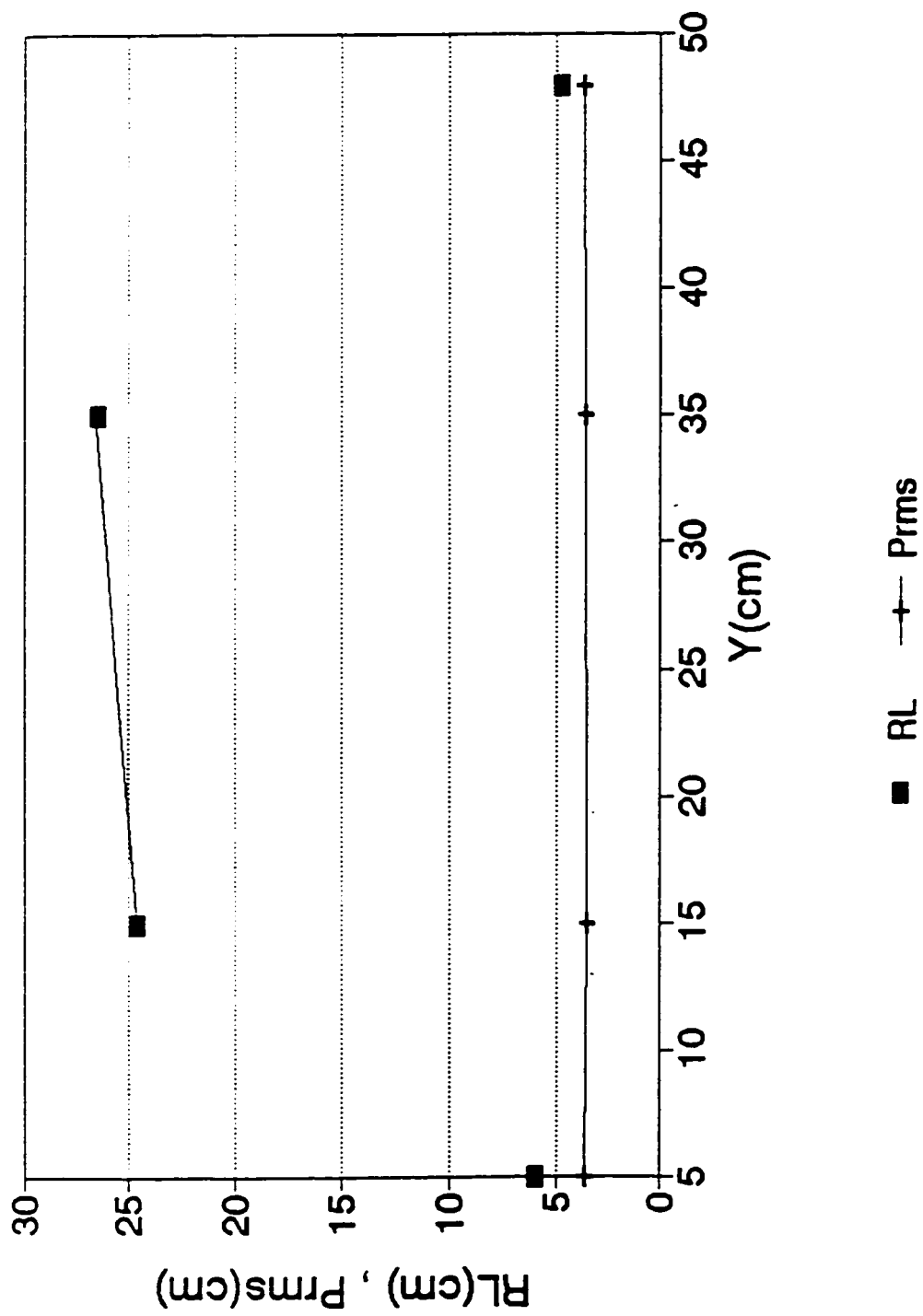


Fig. 5.57

Correlation Length & Total Pressure for
Sill = 1:5 ; 1:10 yr ; Lateral ; $x=22$ cm

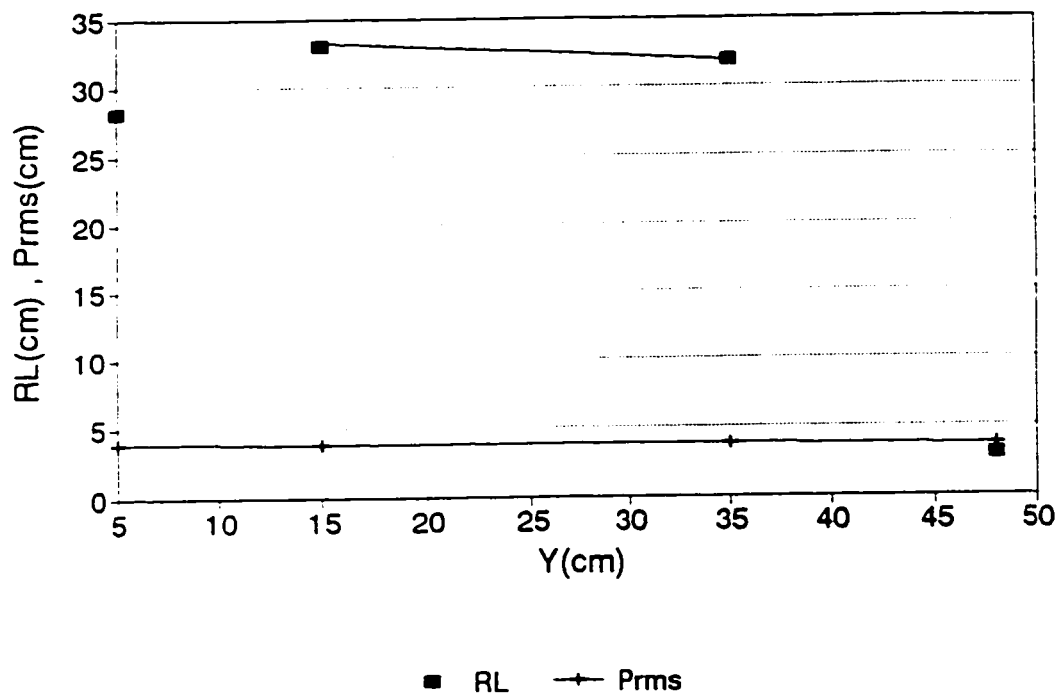


Fig. 5.58

Correlation Length & Total Pressure for
Sill = 1:5 ; 1:100 yr ; Lateral ; $x=12$ cm

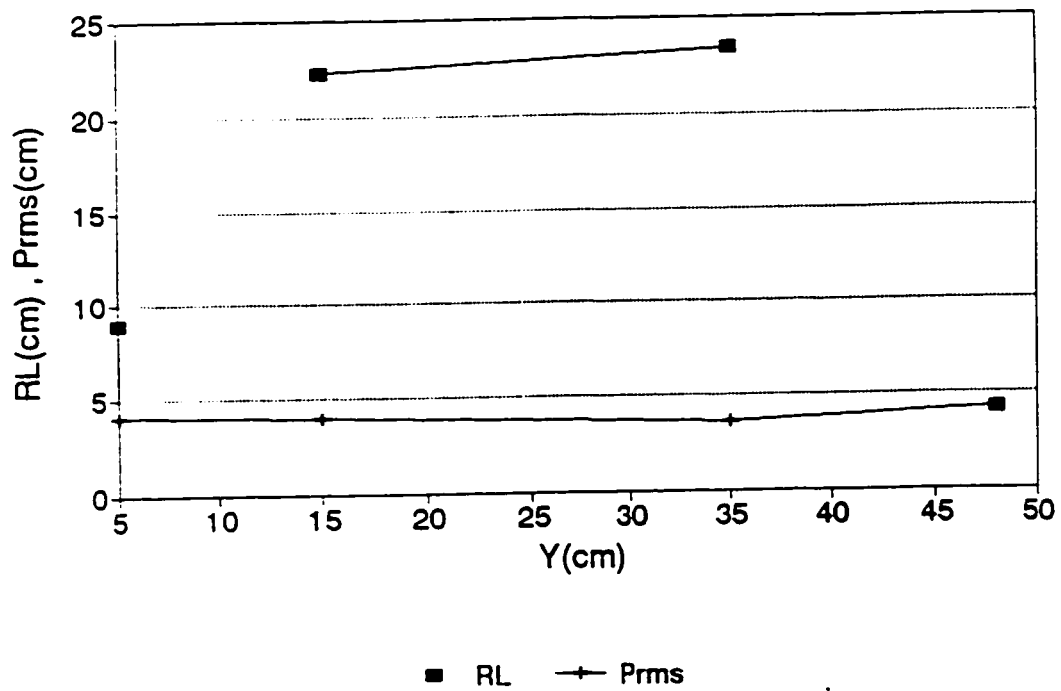


Fig. 5.59

Correlation Length & Total Pressure for
Sill=1:5 ; 1:100 yr ; Lateral ; $x=22$ cm

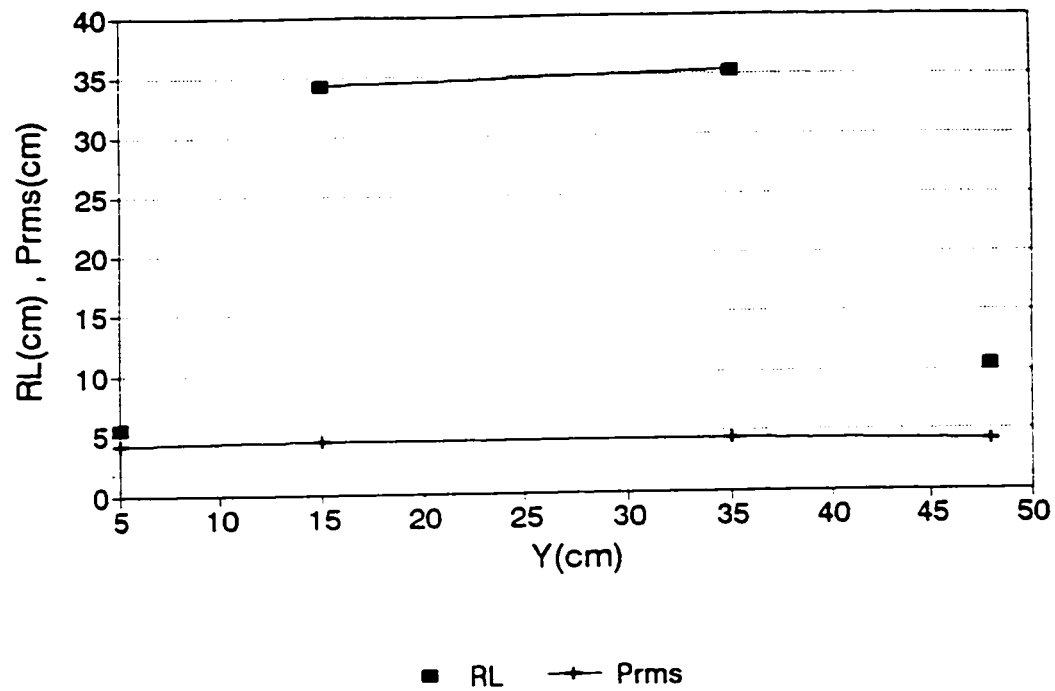


Fig. 5.60

Correlation Length & Total Pressure for
Sill=1:5 ; Hazel ; Lateral ; $x=12$ cm

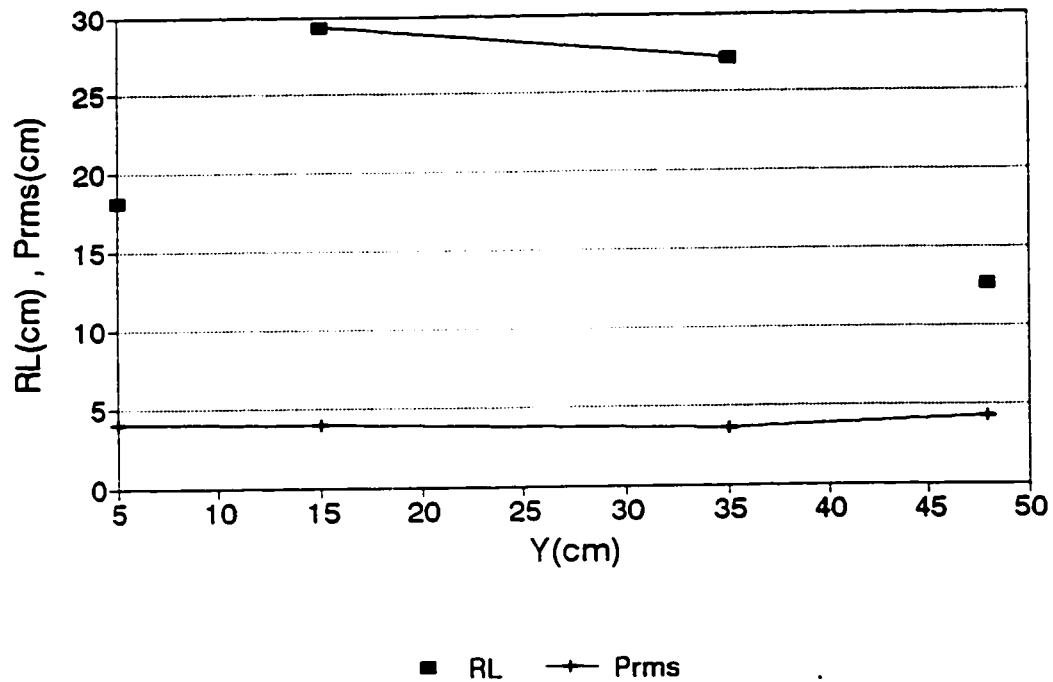


Fig. 5.61

Correlation Length & Total Pressure for
Sill=1:5 ; Hazel ; Lateral ; $x=22$ cm

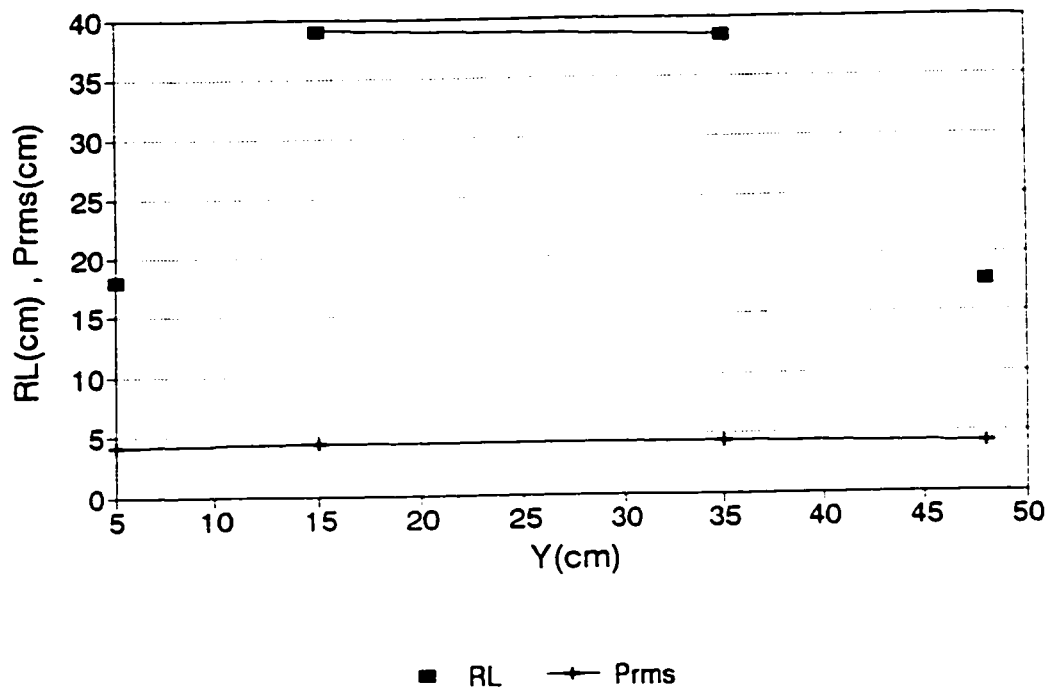


Fig. 5.62

Correlation Length & Total Pressure for
Sill=1:6 ; 1:10 yr ; Lateral ; $x=12$ cm

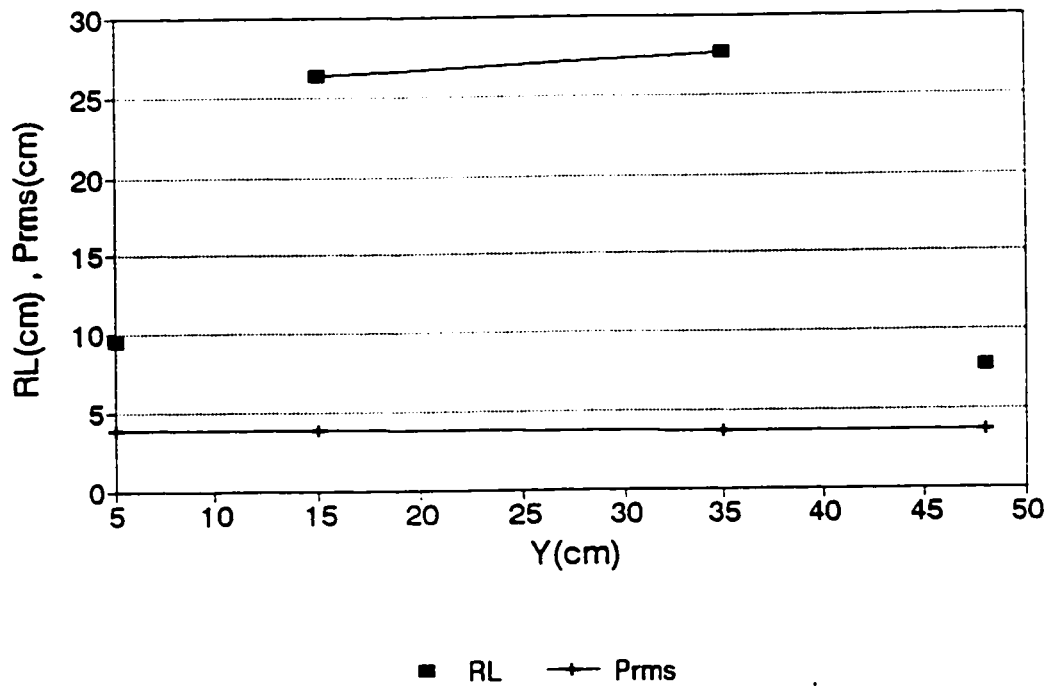


Fig. 5.63

Correlation Length & Total Pressure for
Sill=1:6 ; 1:10 yr ; Lateral ; x=22 cm

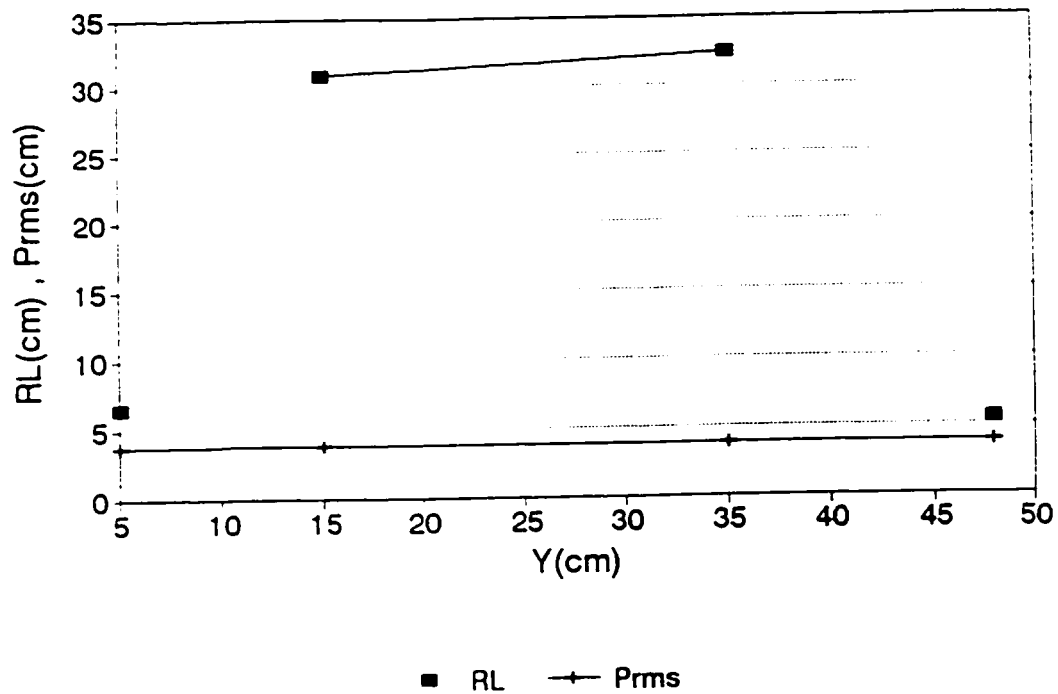


Fig. 5.64

Correlation Length & Total Pressure for
Sill=1:6 ; 1:100 yr ; Lateral ; x=12 cm

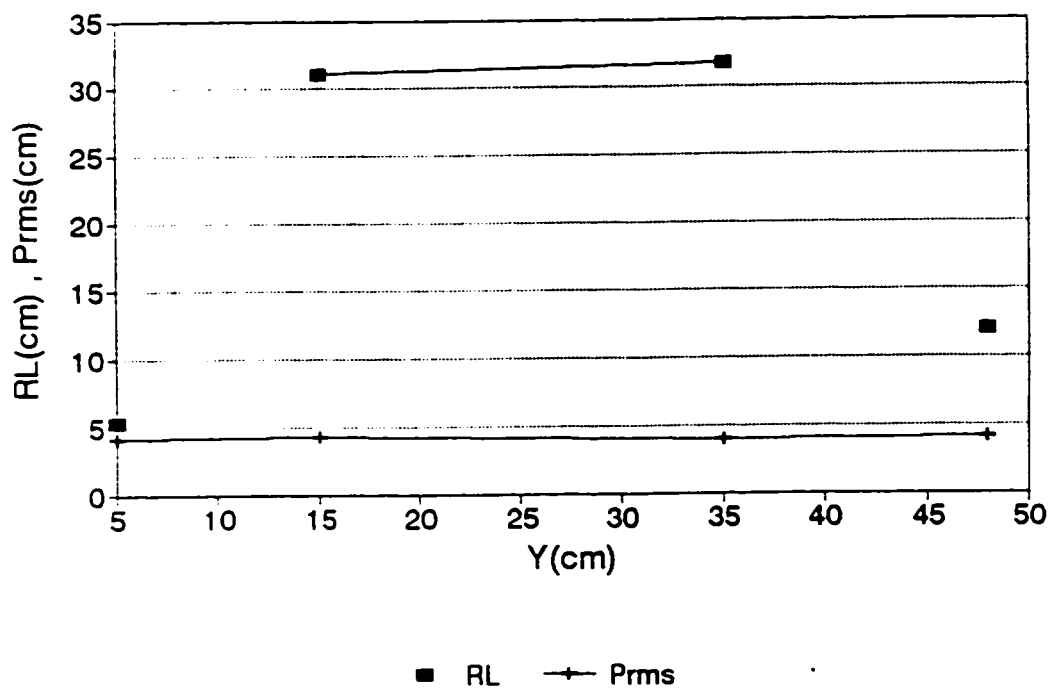


Fig. 5.65

Correlation Length & Total Pressure for
Sill=1:6 ; 1:100 yr ; Lateral ; x=22 cm

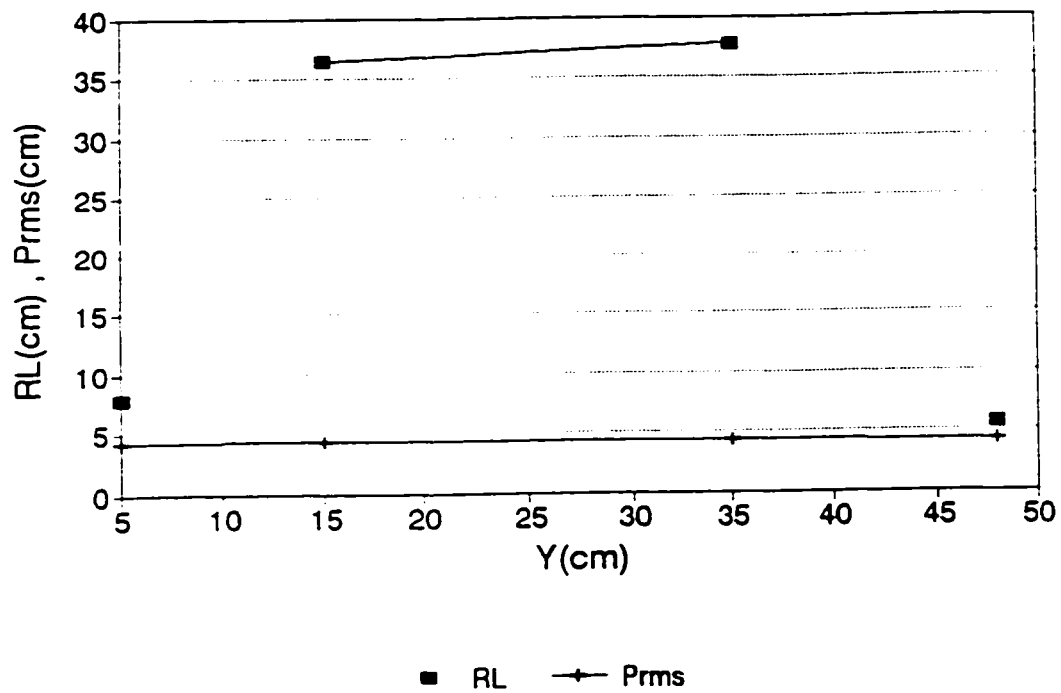


Fig. 5.66

Correlation Length & Total Pressure for
Sill=1:6 ; Hazel ; Lateral ; x=12 cm

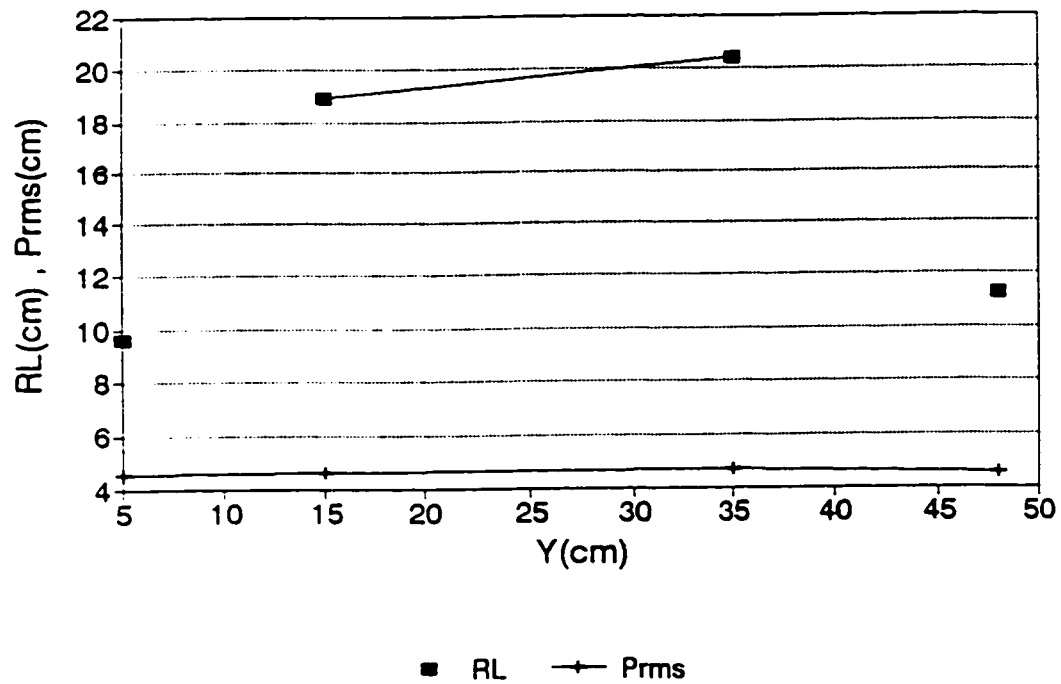


Fig. 5.67

Correlation Length & Total Pressure for
Sill=1:6 ; Hazel ; Lateral ; x=22 cm

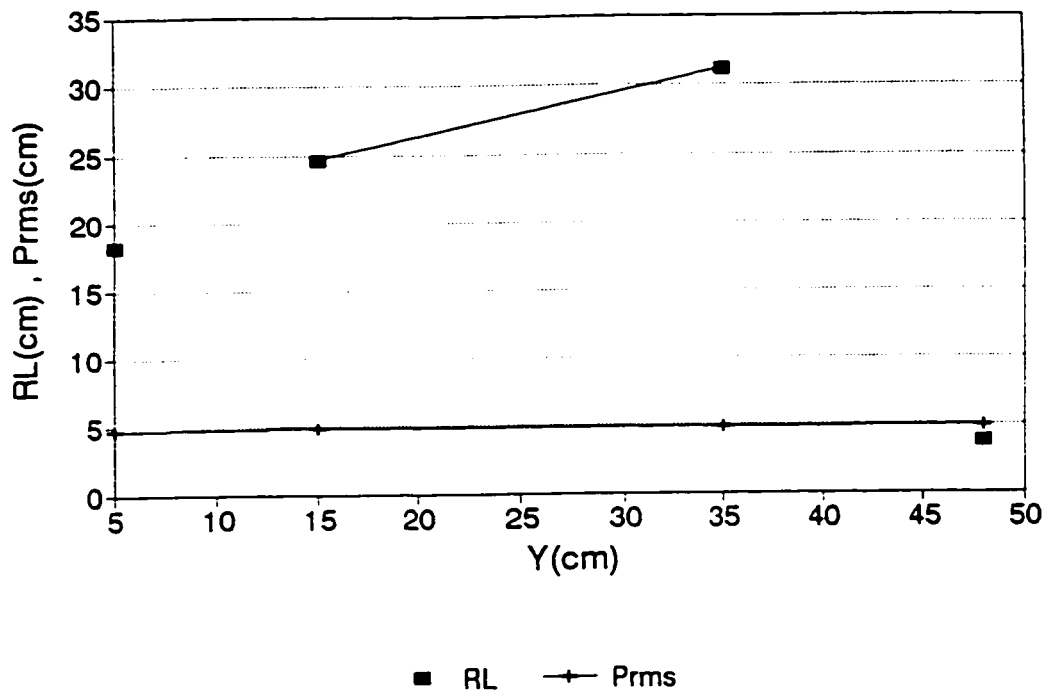


Fig. 5.68

Correlation Length & Total Pressure for
Sill=1:7 ; 1:10 yr ; Lateral ; x=12 cm

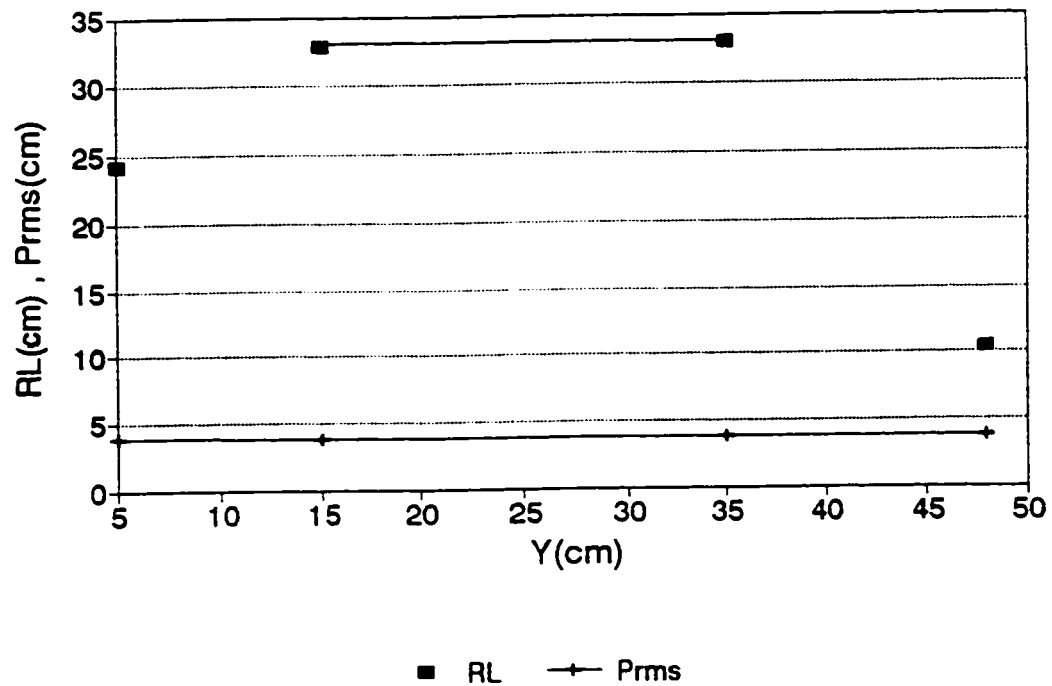


Fig. 5.69

Correlation Length & Total Pressure for
Sill=1:7 ; 1:10 yr ; Lateral ; x=22 cm

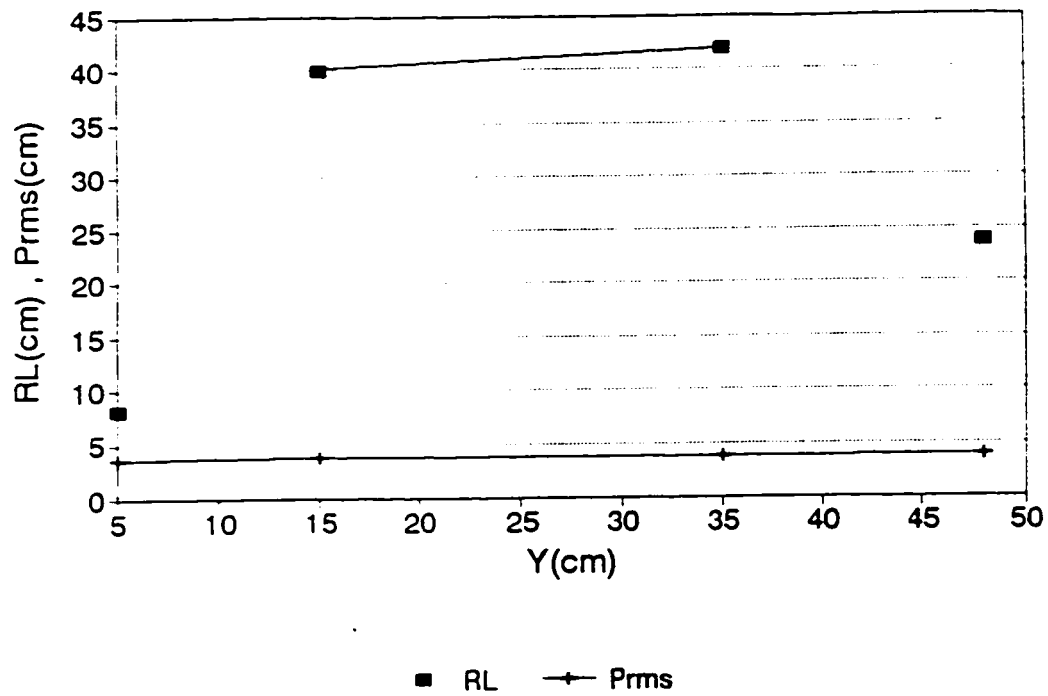


Fig. 5.70

Correlation Length & Total Pressure for
Sill=1:7 ; 1:100 yr ; Lateral ; x=12 cm

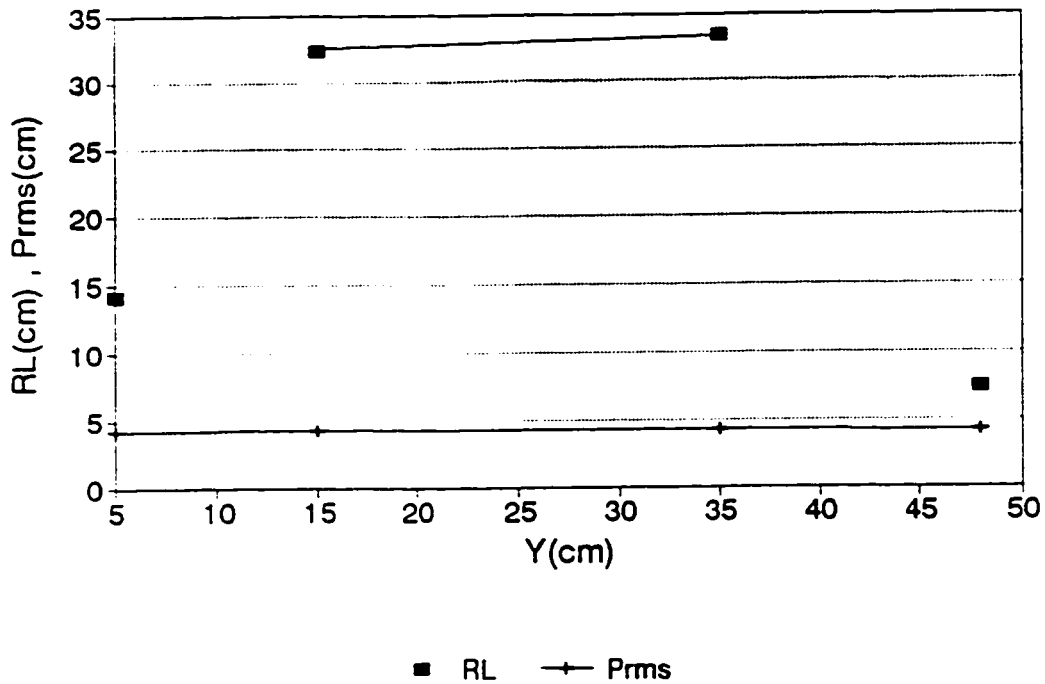


Fig. 5.71

Correlation Length & Total Pressure for
Sill=1:7 ; 1:100 yr ; Lateral ; x=22 cm

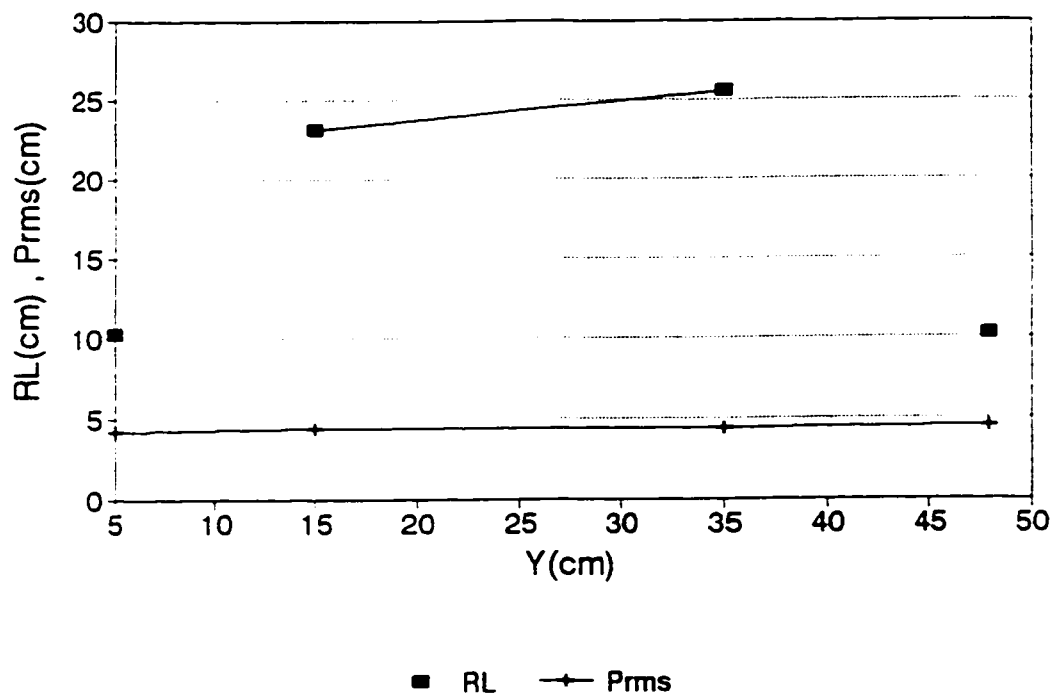


Fig. 5.72

Correlation Length & Total Pressure for
Sill=1:7 ; Hazel ; Lateral ; x=12 cm

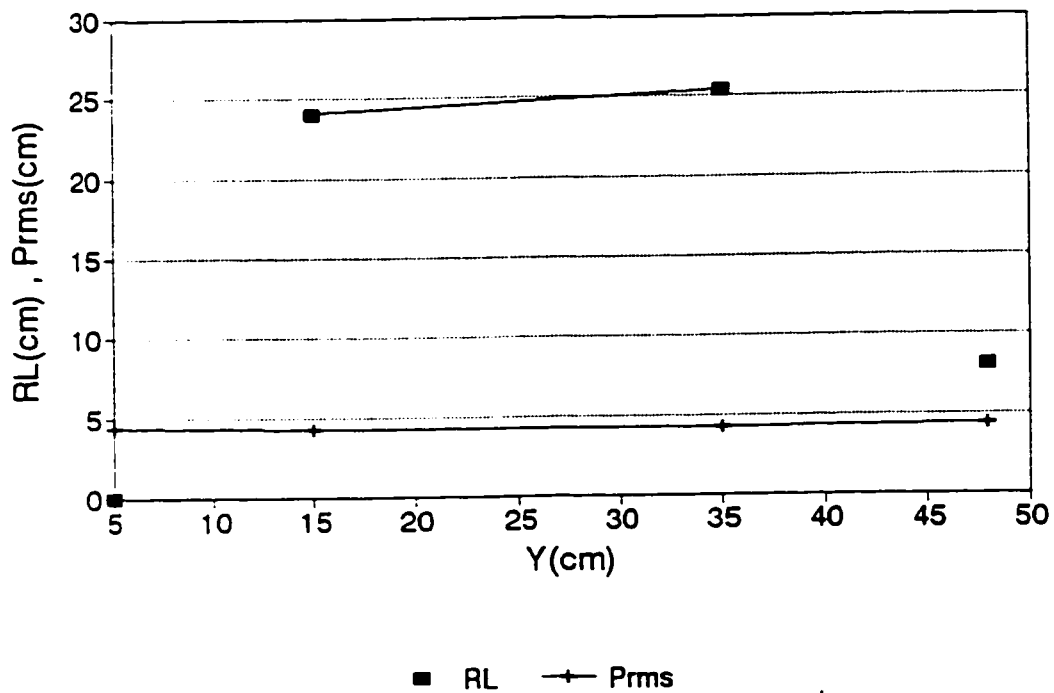


Fig. 5.73

Correlation Length & Total Pressure for
Sill=1:7 ; Hazel ; Lateral ; x=22 cm

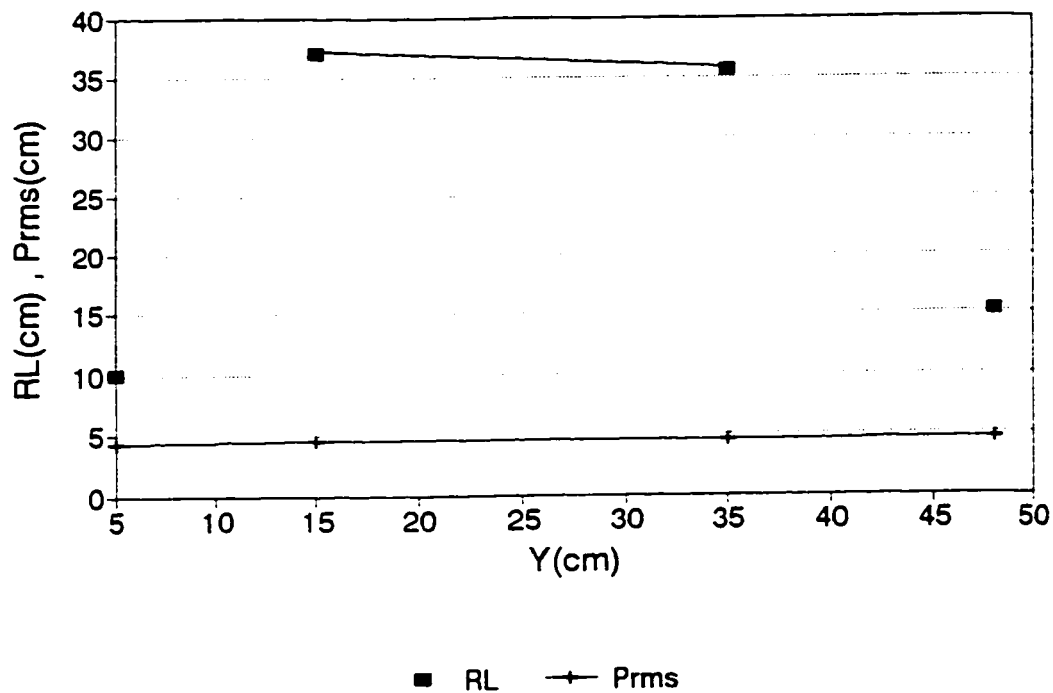


Fig. 5.74

Correlation Length & Total Pressure for
Sill=1:8 ; 1:10 yr ; Lateral ; x=12 cm

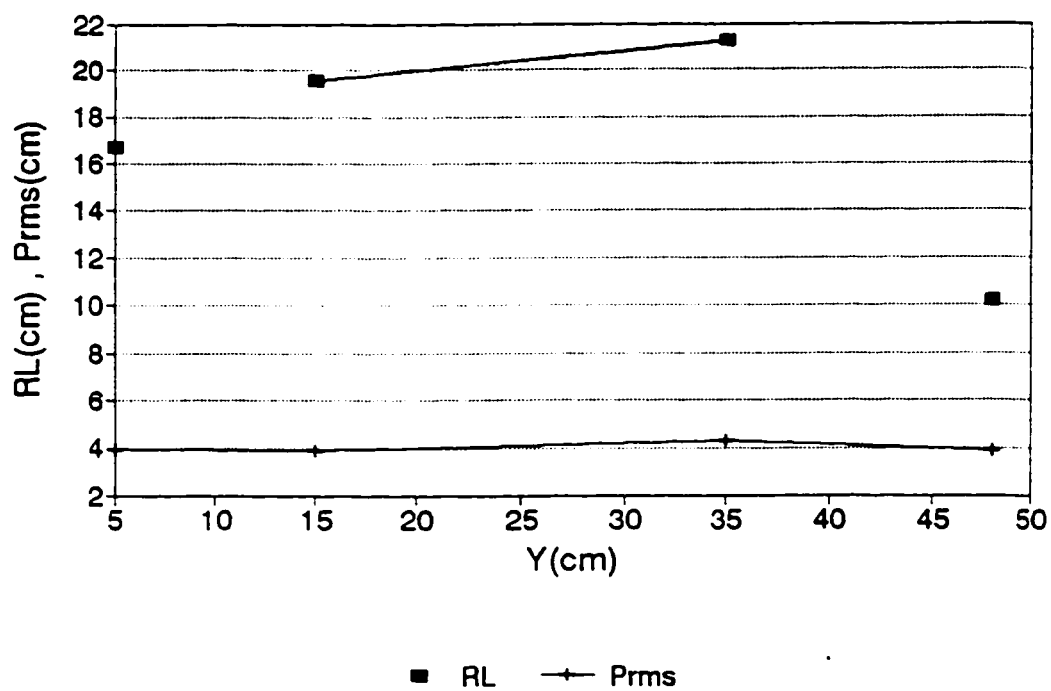


Fig. 5.75

Correlation Length & Total Pressure for
Sill=1:8 ; 1:10 yr ; Lateral ; x=22 cm

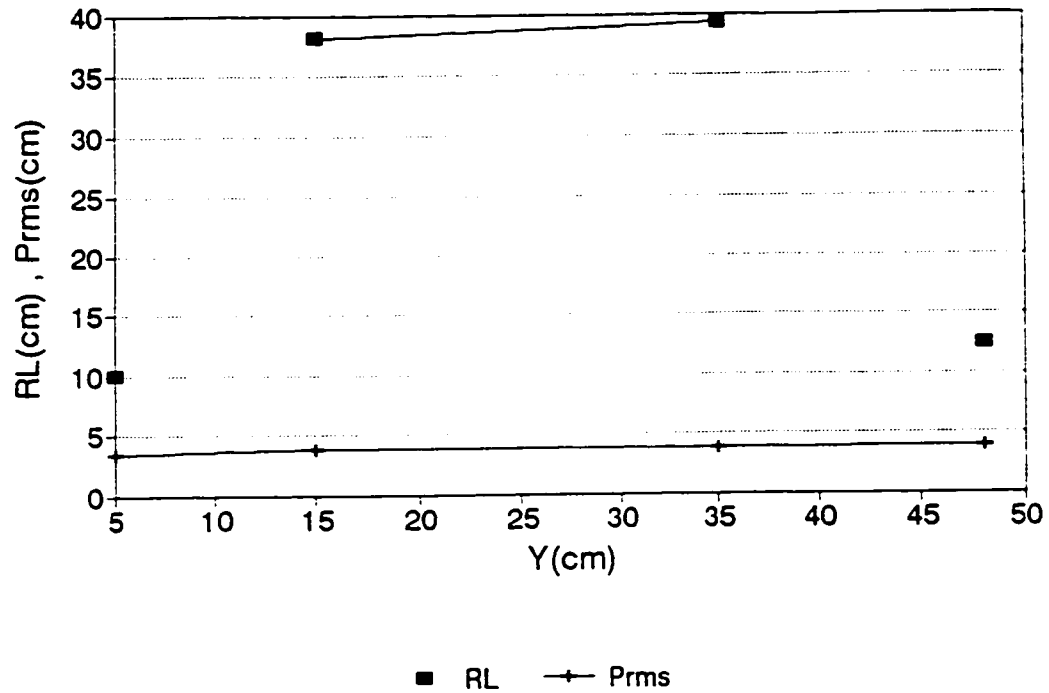


Fig. 5.76

Correlation Length & Total Pressure for
Sill=1:8 ; 1:100 yr ; Lateral ; x=12 cm

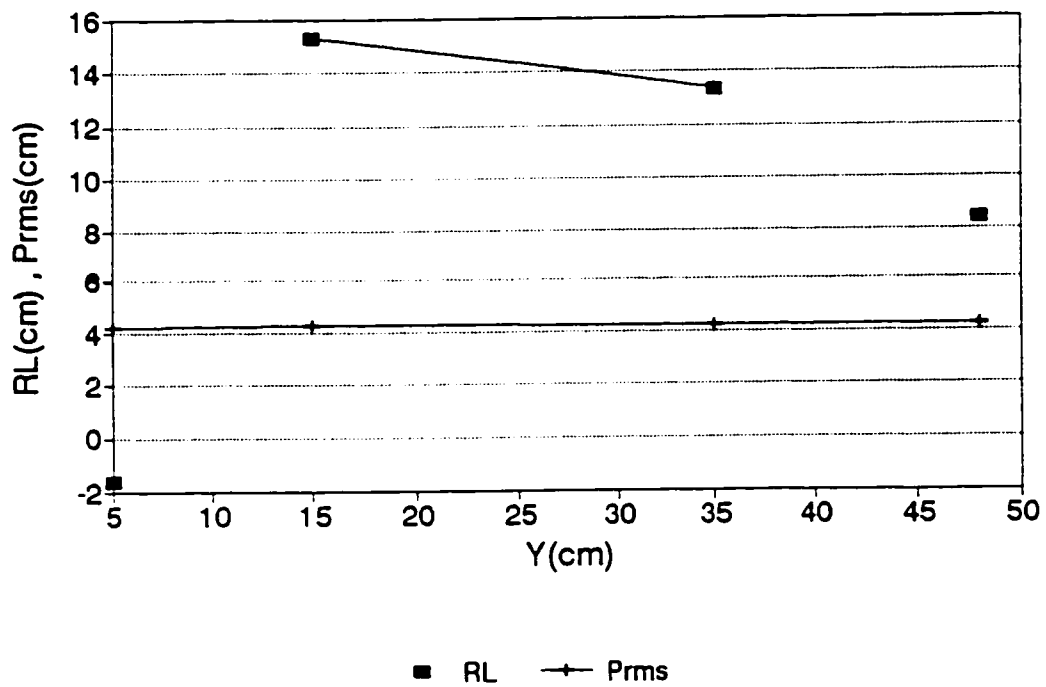


Fig. 5.77

Correlation Length & Total Pressure for
Sill=1:8 ; 1:100 yr ; Lateral ; x=22 cm

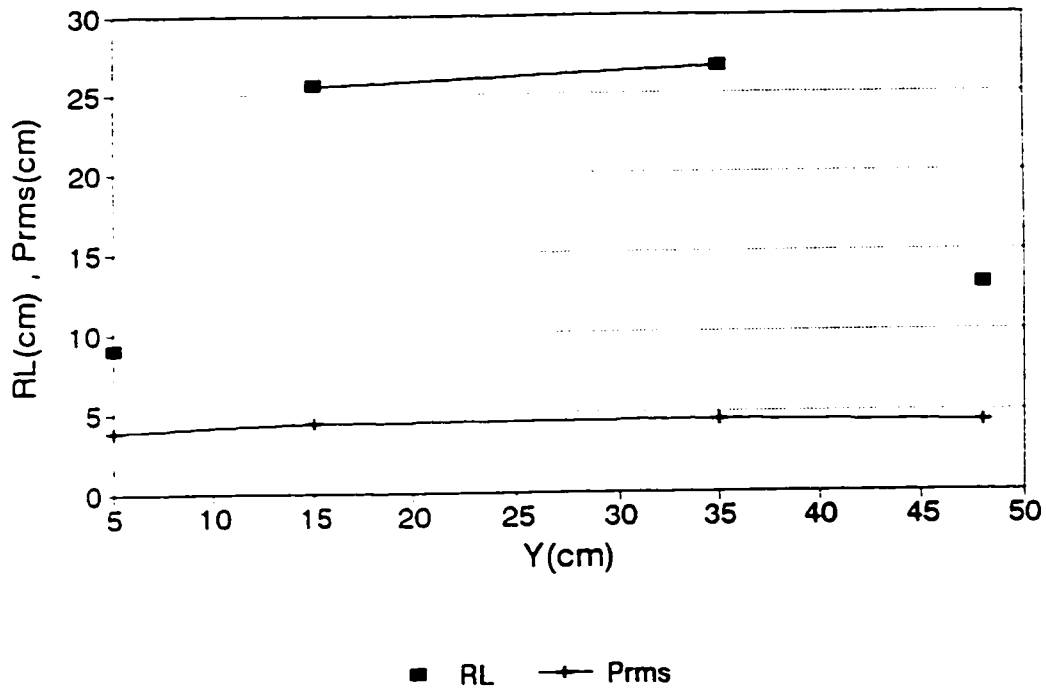


Fig. 5.78

Correlation Length & Total Pressure for
Sill=1:8 ; Hazel ; Lateral ; x=12 cm

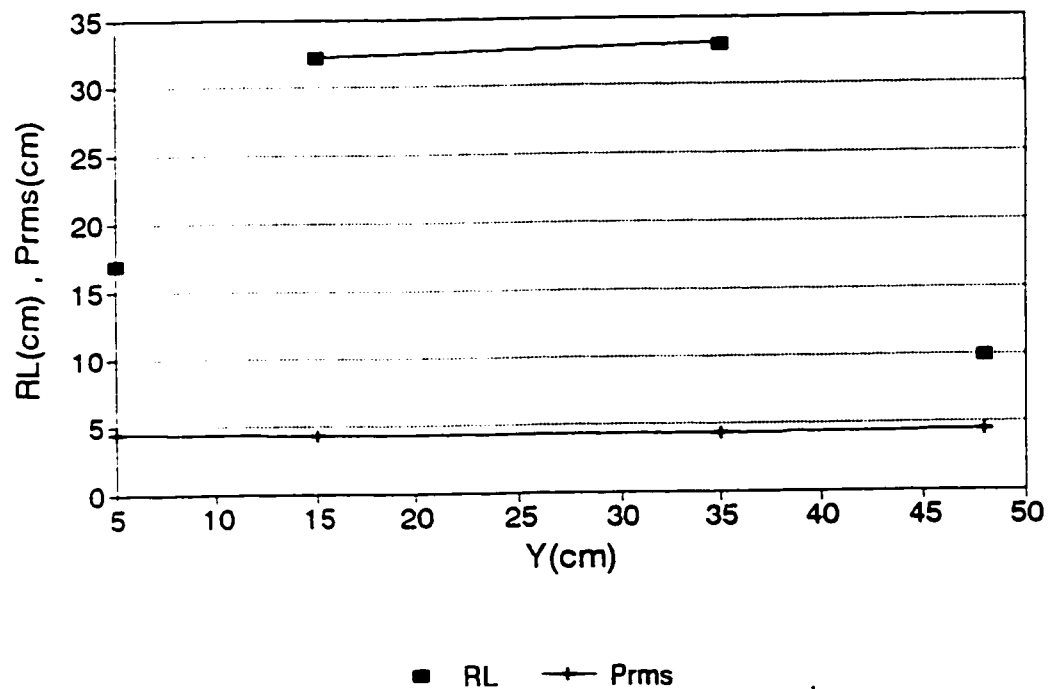


Fig. 5.79

Correlation Length & Total Pressure for
Sill=1:8 ; Hazel ; Lateral ; x=22 cm

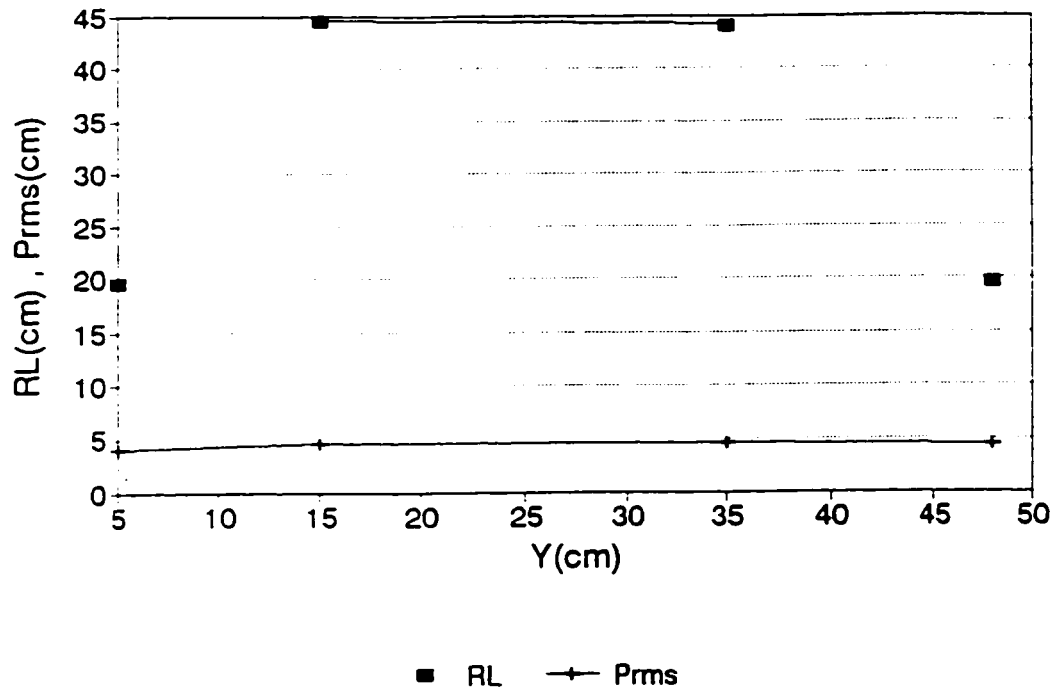


Fig. 5.80

Correlation Length & Total Pressure for
Sill=1:4 ; 1:10 yr ; Lateral ; x=12 cm

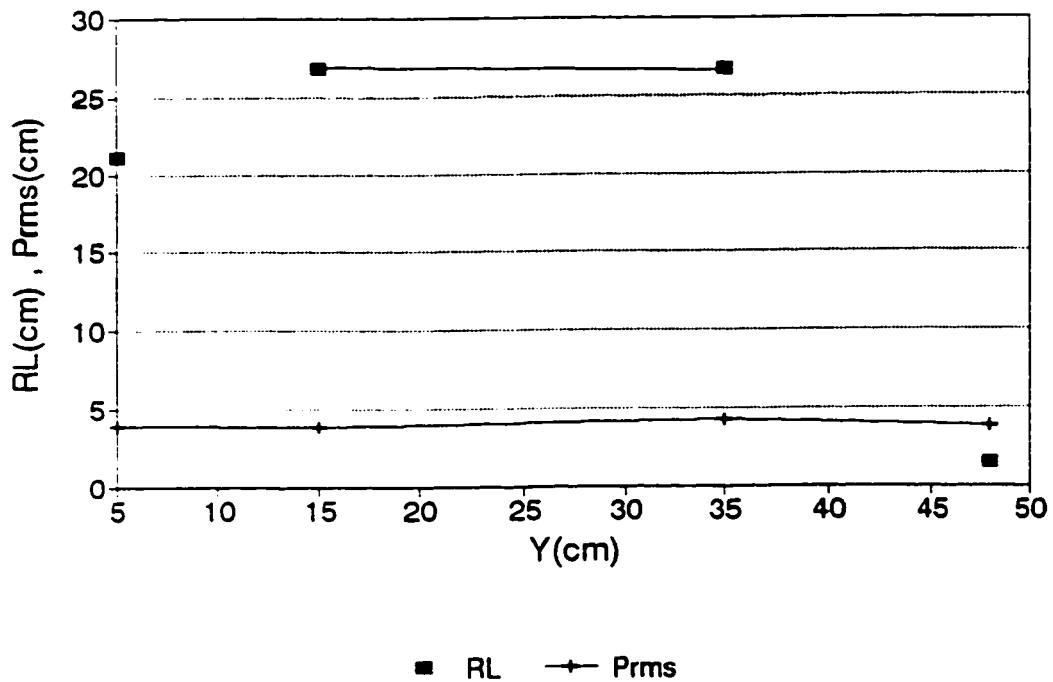


Fig. 5.81

Correlation Length & Total Pressure for
Sill=1:4 ; 1:10 yr ; Lateral ; x=22 cm

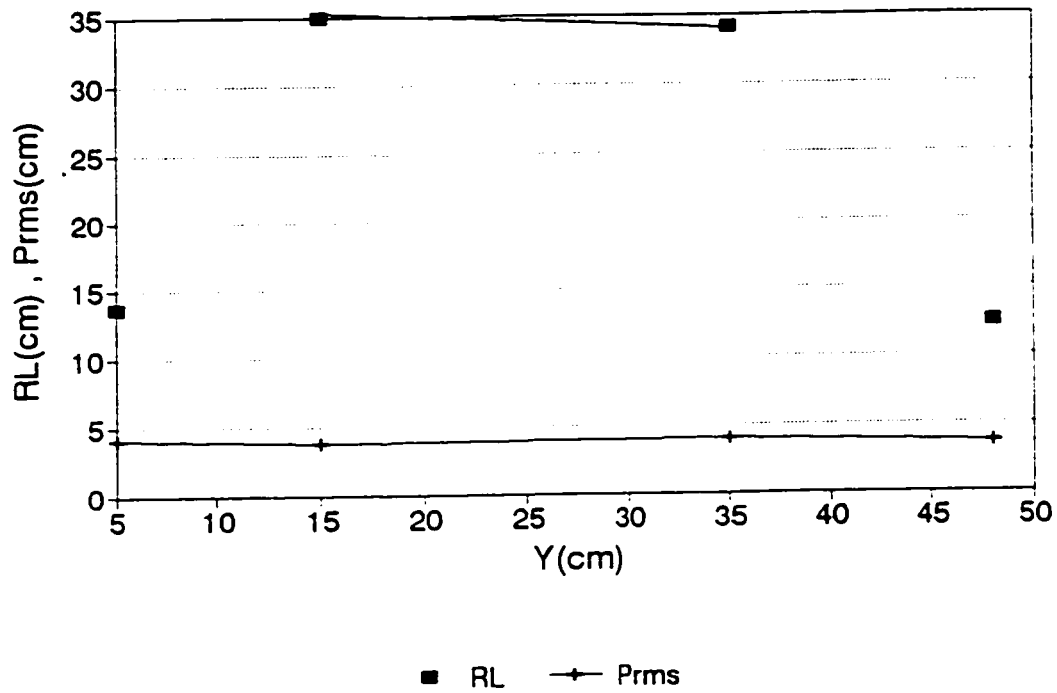


Fig. 5.82

Correlation Length & Total Pressure for
Sill=1:4 ; 1:100 yr ; Lateral ; x=12 cm

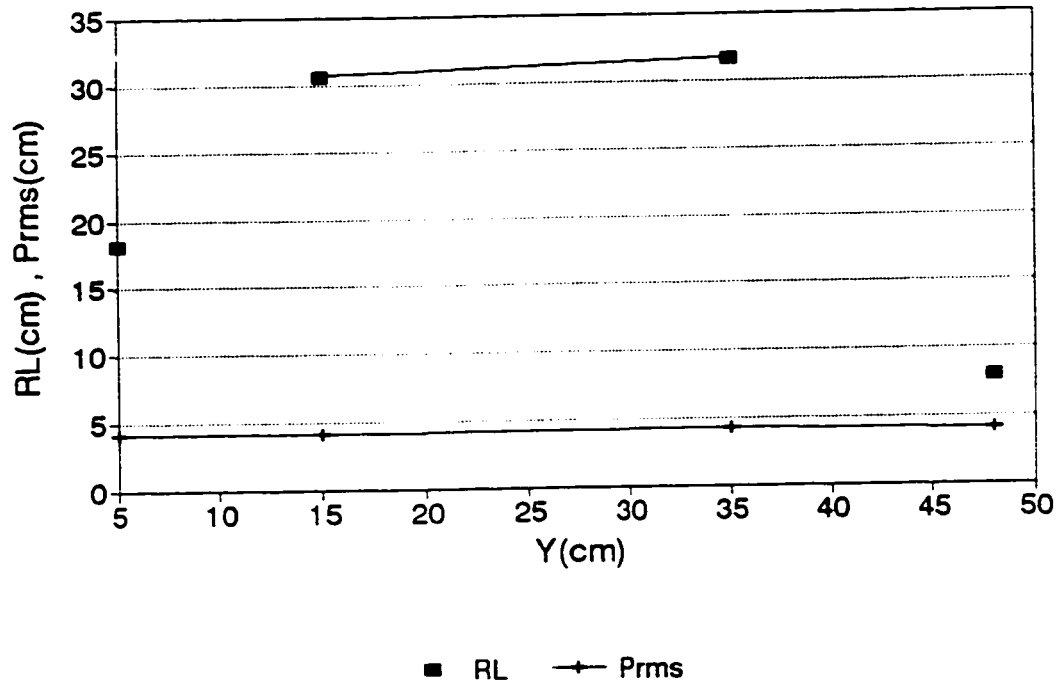


Fig. 5.83

Correlation Length & Total Pressure for
Sill=1:4 ; 1:100 yr ; Lateral ; x=22 cm

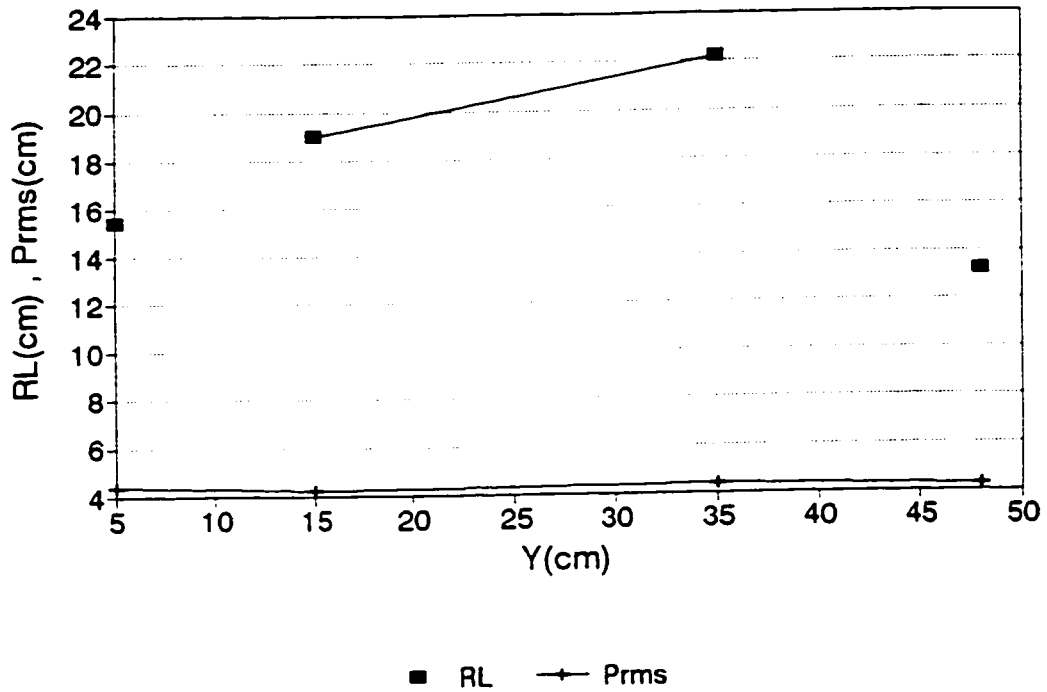


Fig. 5.84

Correlation Length & Total Pressure for
Sill=1:4 ; Hazel ; Lateral ; x=12 cm

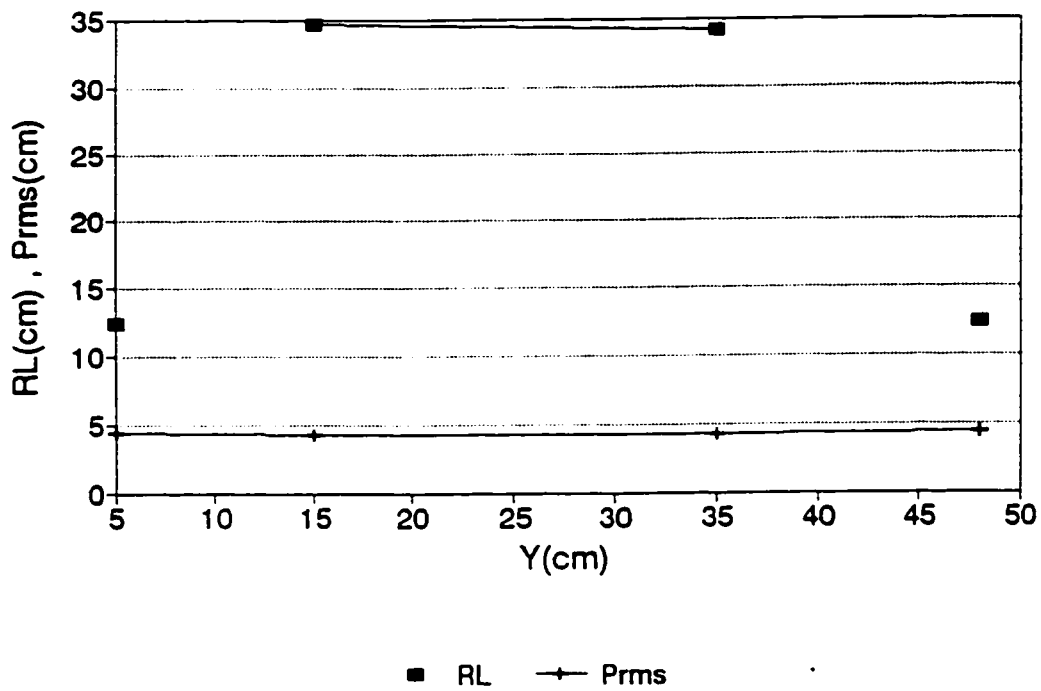


Fig. 5.85

Correlation Length & Total Pressure for
Sill = 1:4 ; Hazel ; Lateral ; $x=22$ cm

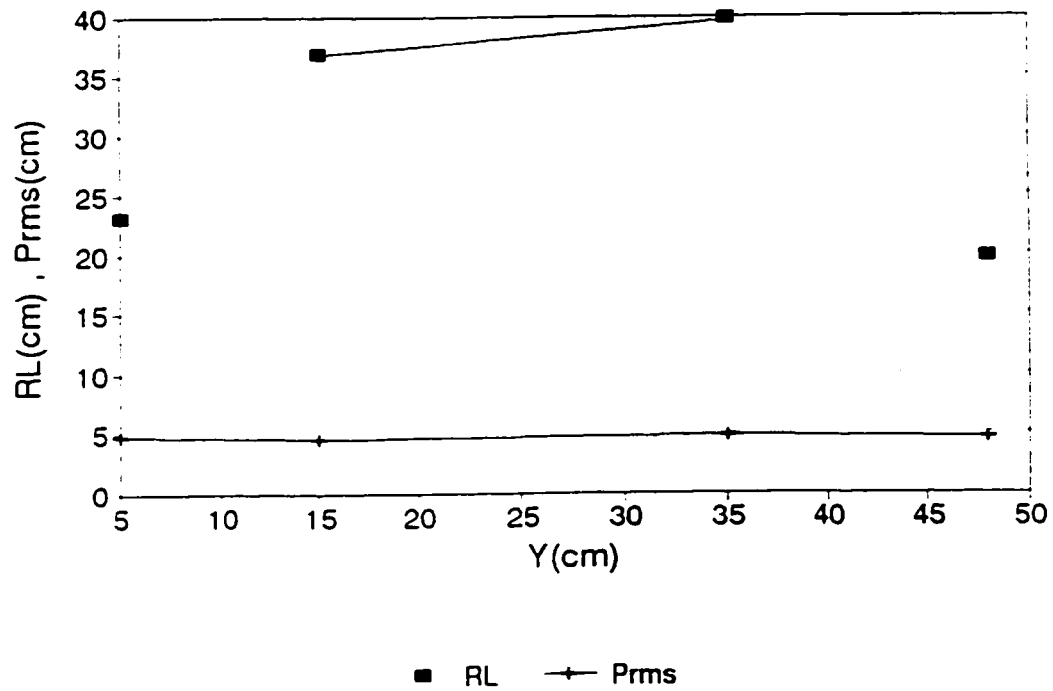


Fig. 5.86

Correlation Length & Total Pressure for
Sill = 1:1 ; 1:10 yr ; Lateral ; $x=12$ cm

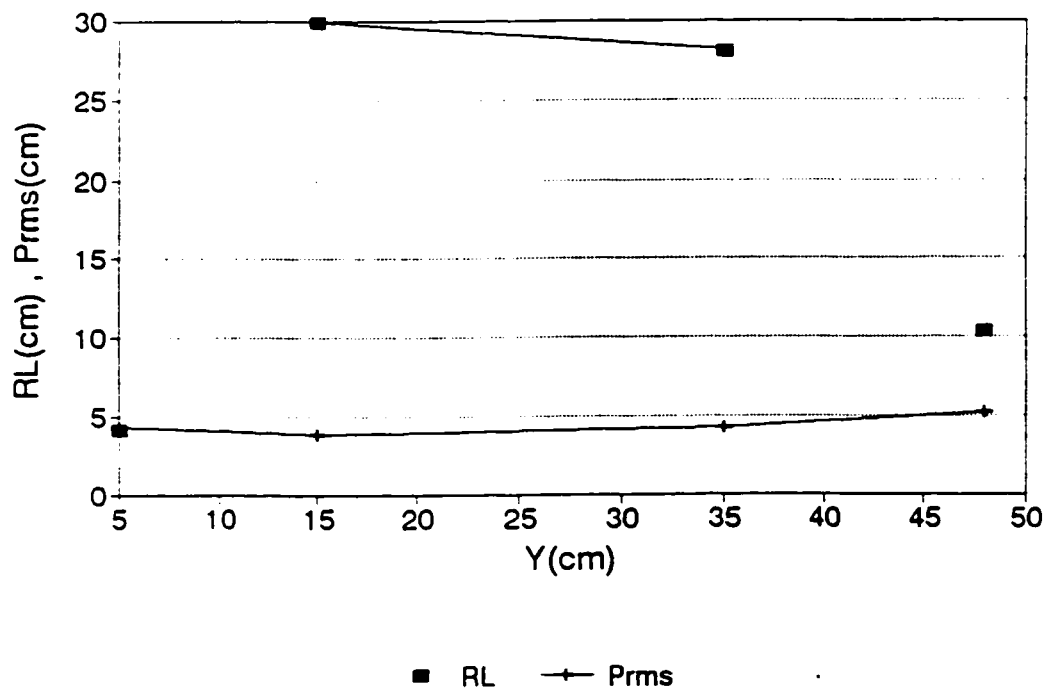


Fig. 5.87

Correlation Length & Total Pressure for
Sill=1:1 ; 1:10 yr ; Lateral ; x=22 cm

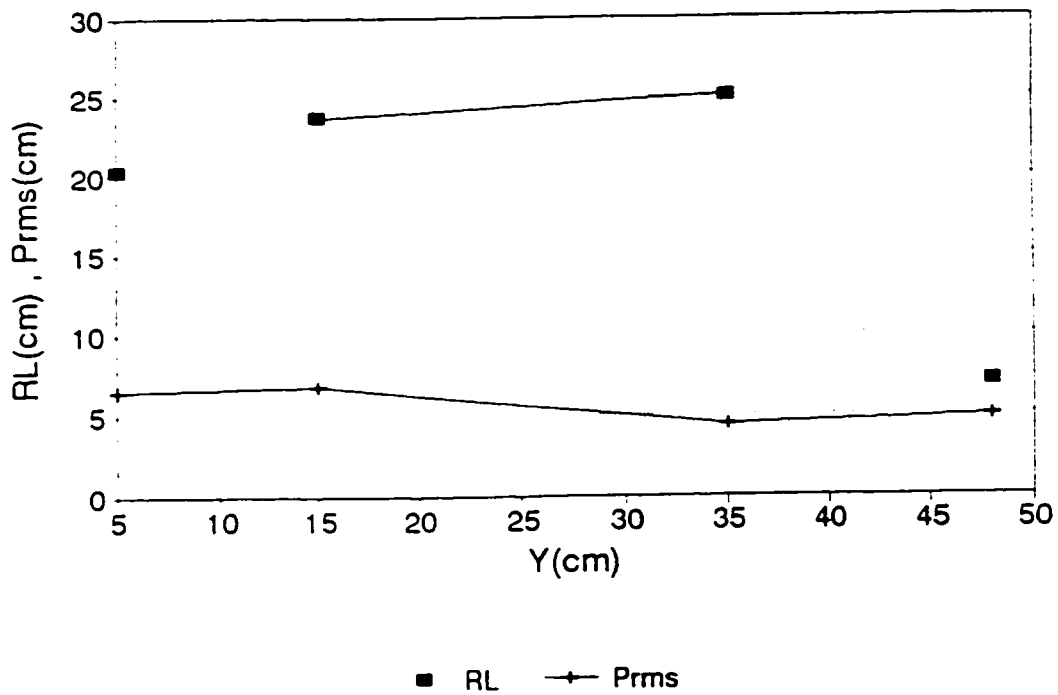


Fig. 5.88

Correlation Length & Total Pressure for
Sill=1:1 ; 1:100 yr ; Lateral ; x=12 cm

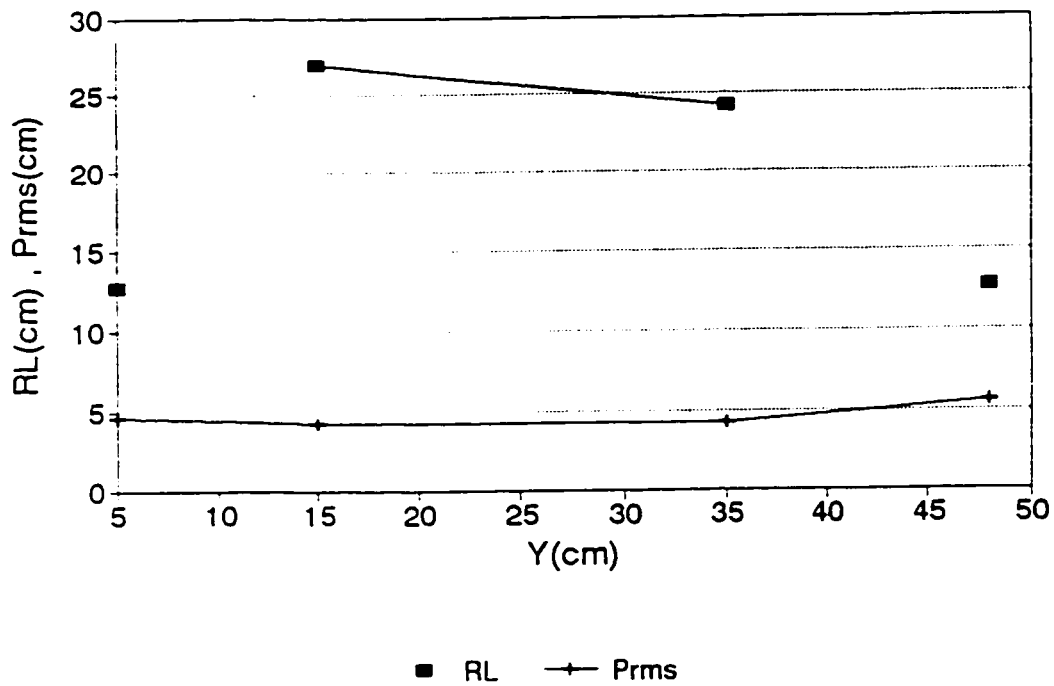


Fig. 5.89

Correlation Length & Total Pressure for
Sill=1:1 ; 1:100 yr ; Lateral ; x=22 cm

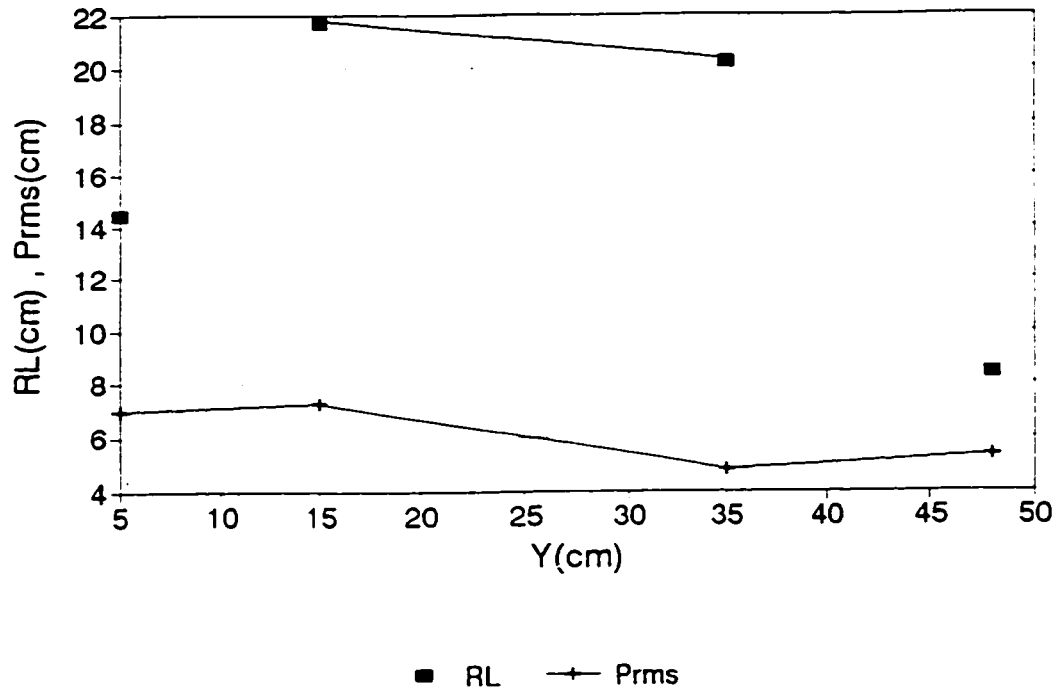


Fig. 5.90

Correlation Length & Total Pressure for
Sill=1:1 ; Hazel ; Lateral ; x=22 cm

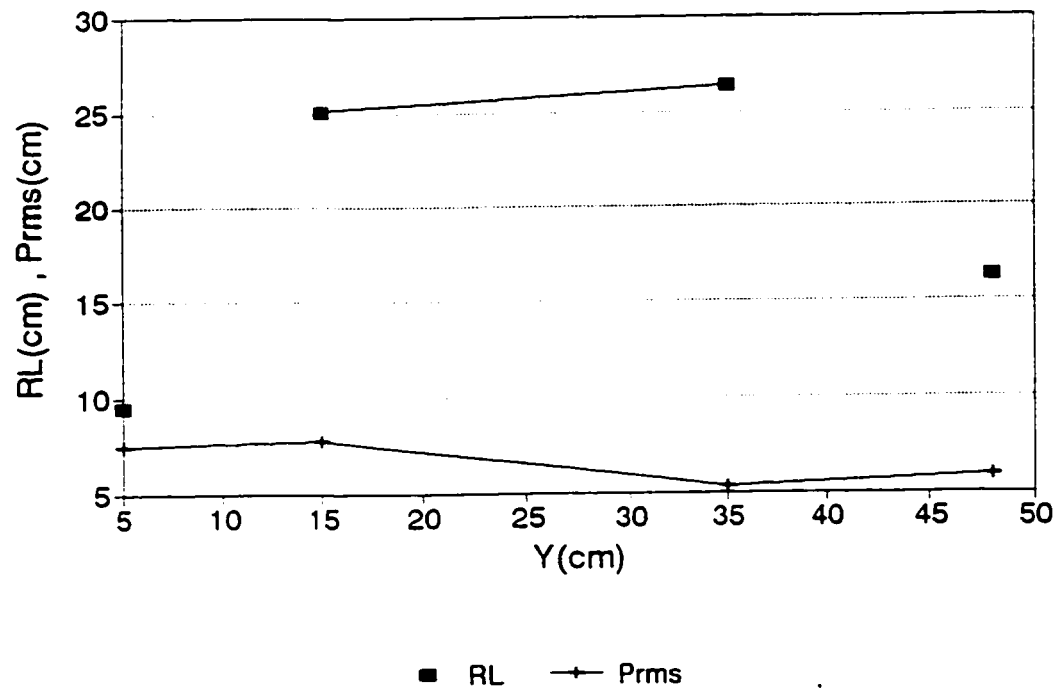


Fig. 5.91

Correlation Length & Total Pressure for
Sill=1:1 ; Hazel ; Lateral ; x=12 cm

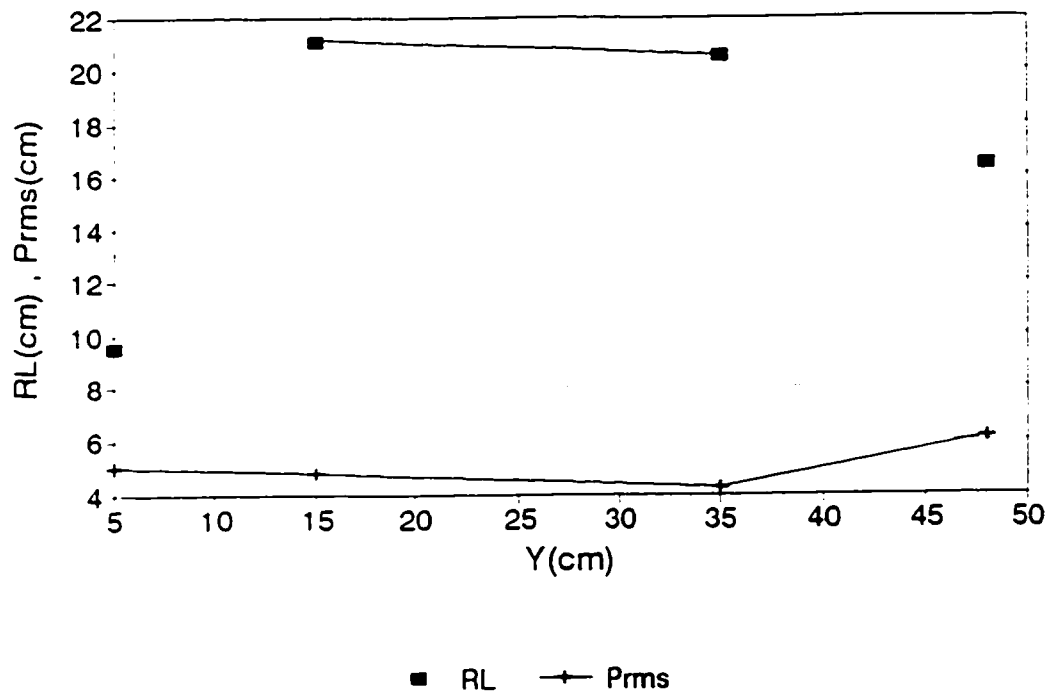


Fig. 5.92

Correlation Length & Total Pressure for
Sill=1:2 ; 1:10 yr ; Lateral ; x=12 cm

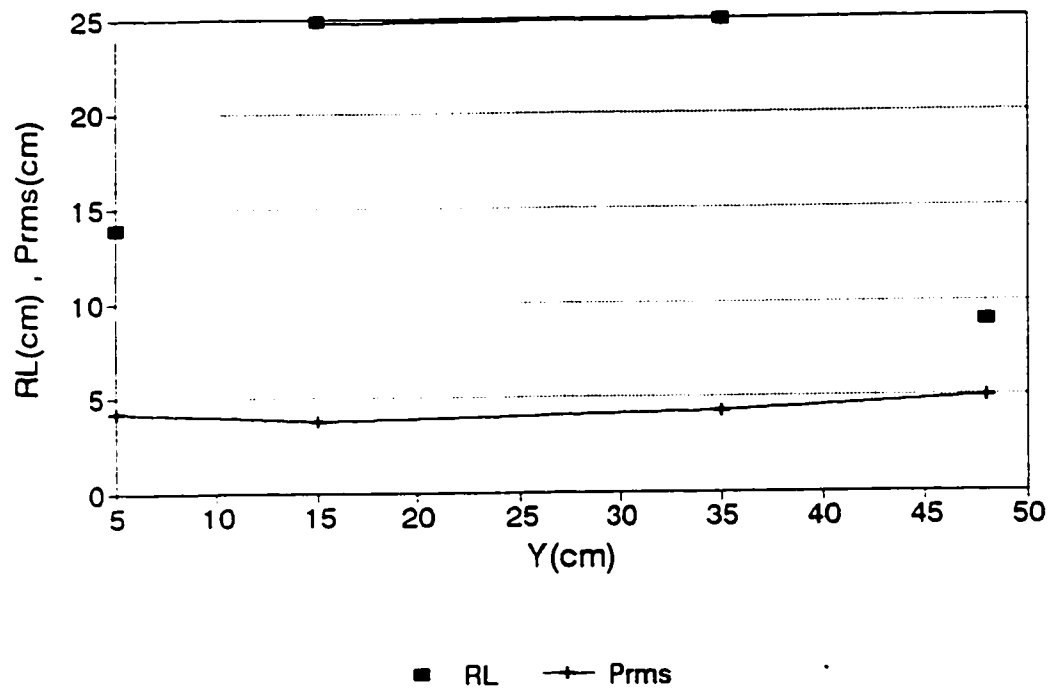


Fig. 5.93

Correlation Length & Total Pressure for
Sill=1:2 ; 1:10 yr ; Lateral ; x=22 cm

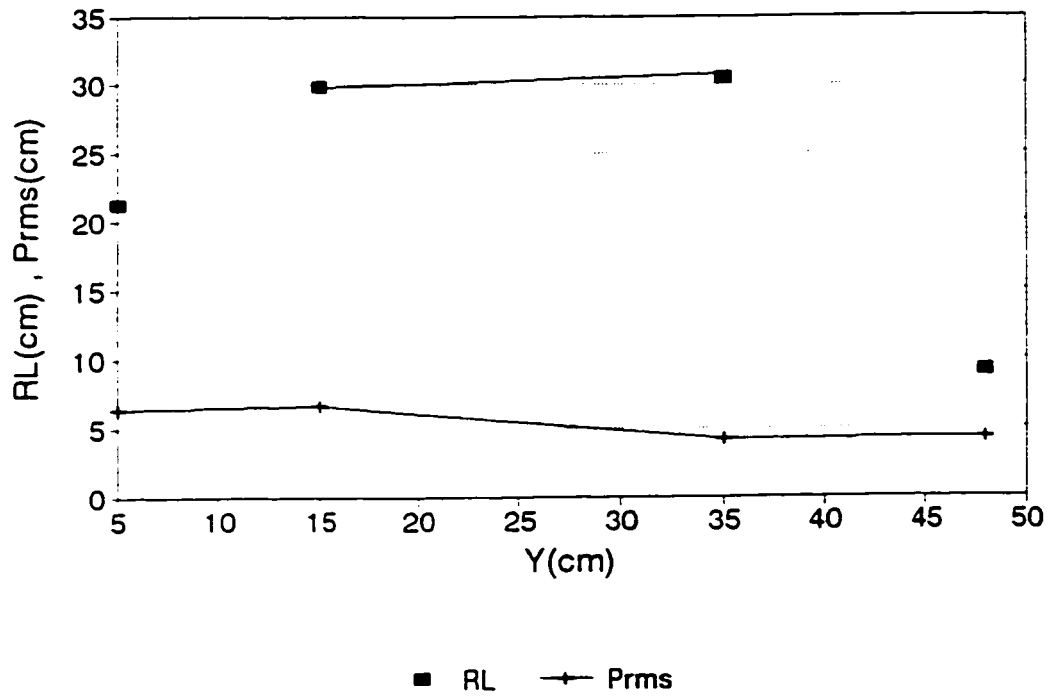


Fig. 5.94

Correlation Length & Total Pressure for
Sill=1:2 ; 1:100 yr ; Lateral ; x=12 cm

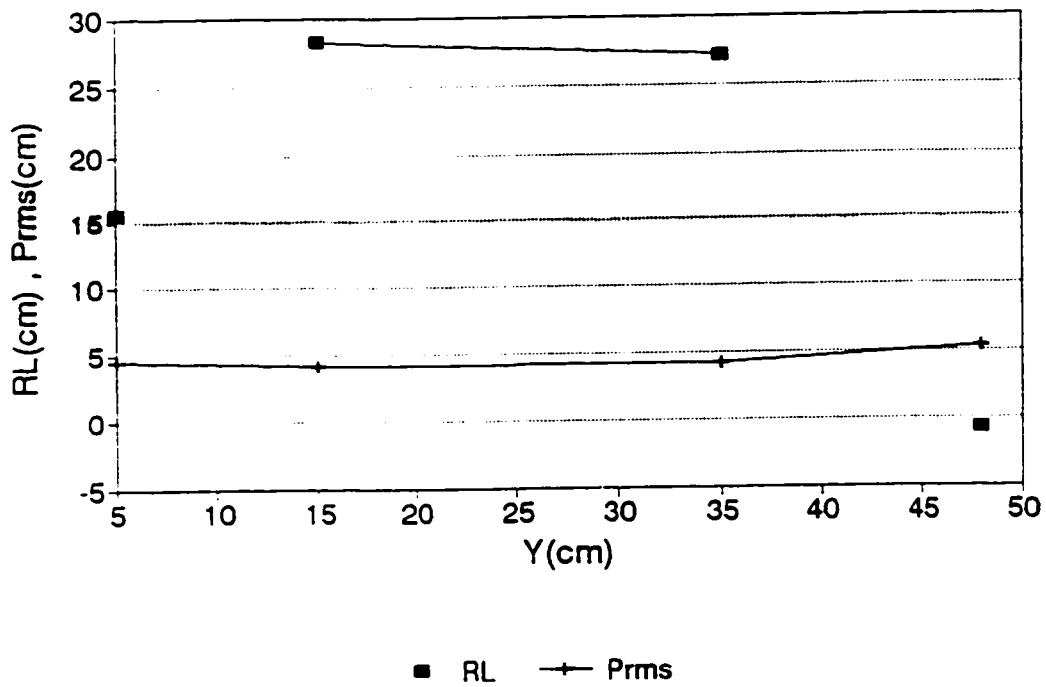


Fig. 5.95

Correlation Length & Total Pressure for
Sill=1:2 ; 1:100 yr ; Lateral ; x=22 cm

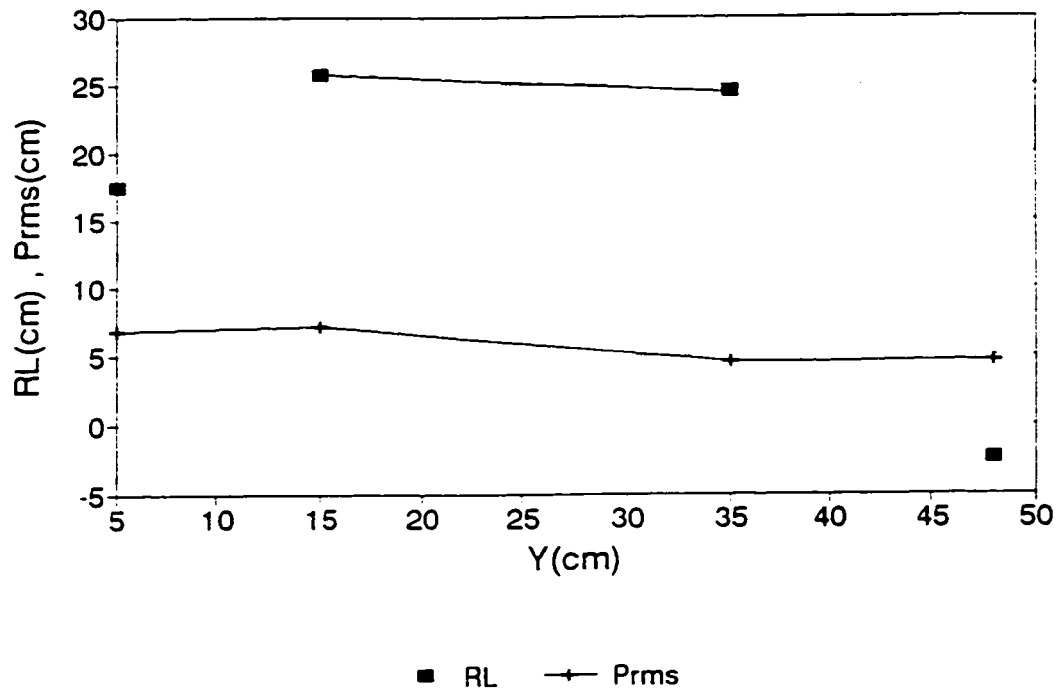


Fig. 5.96

Correlation Length & Total Pressure for
Sill=1:2 ; Hazel ; Lateral ; x=12 cm

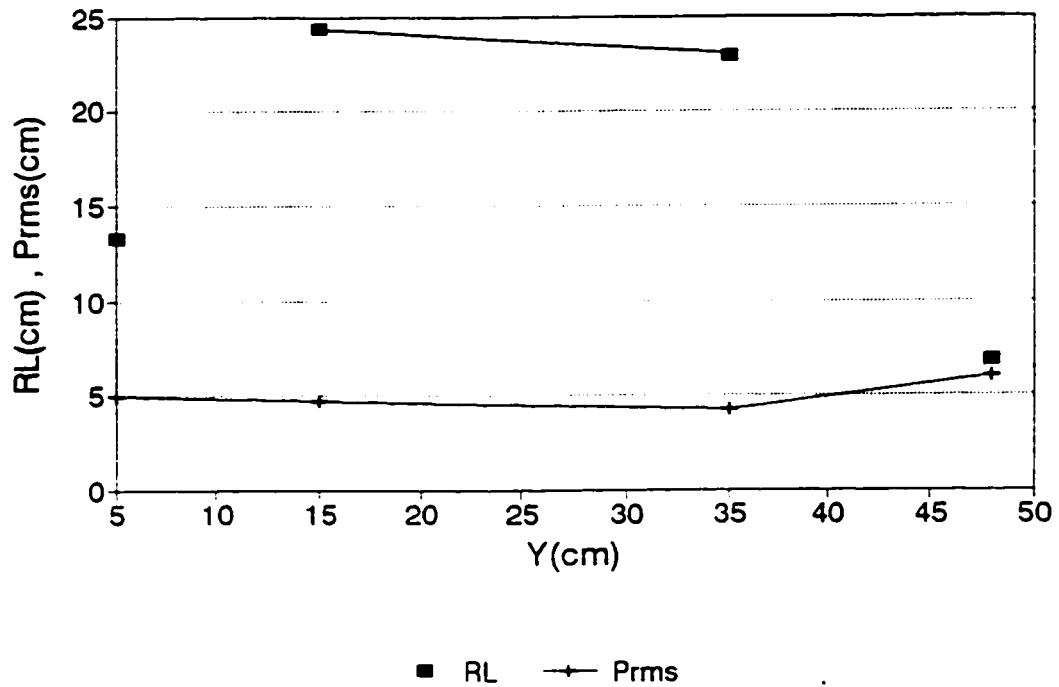


Fig. 5.97

Correlation Length & Total Pressure for
Sill=1:2 ; Hazel ; Lateral ; $x=22$ cm

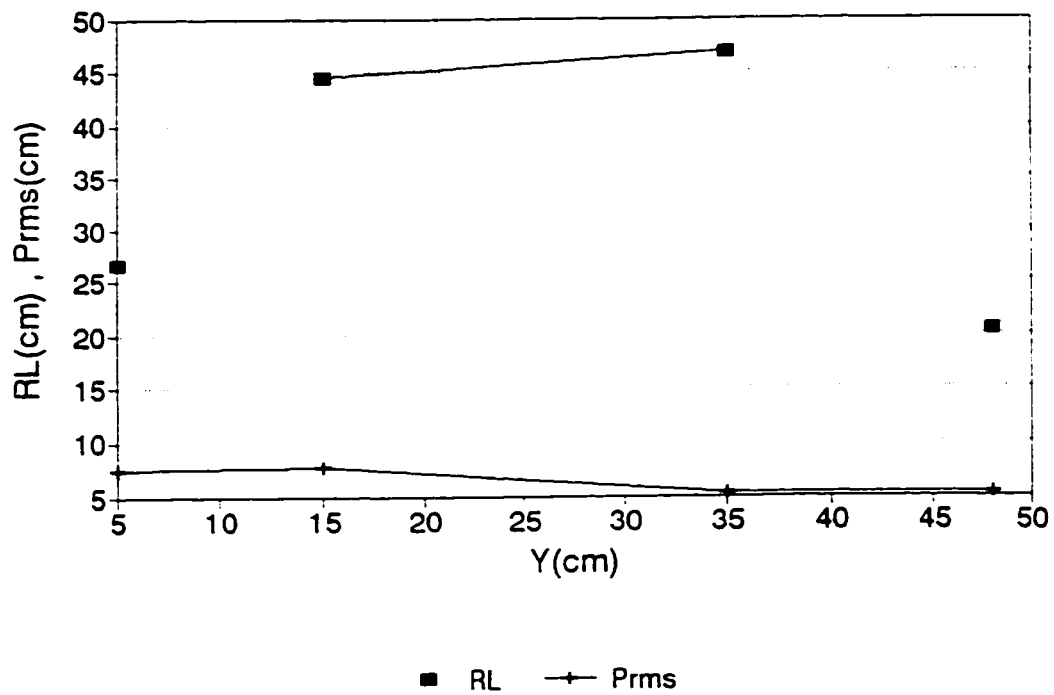


Fig. 5.98

Correlation function for point 3:
Sill=1:6 ; Hazel ; Lateral ; $x=12$ cm

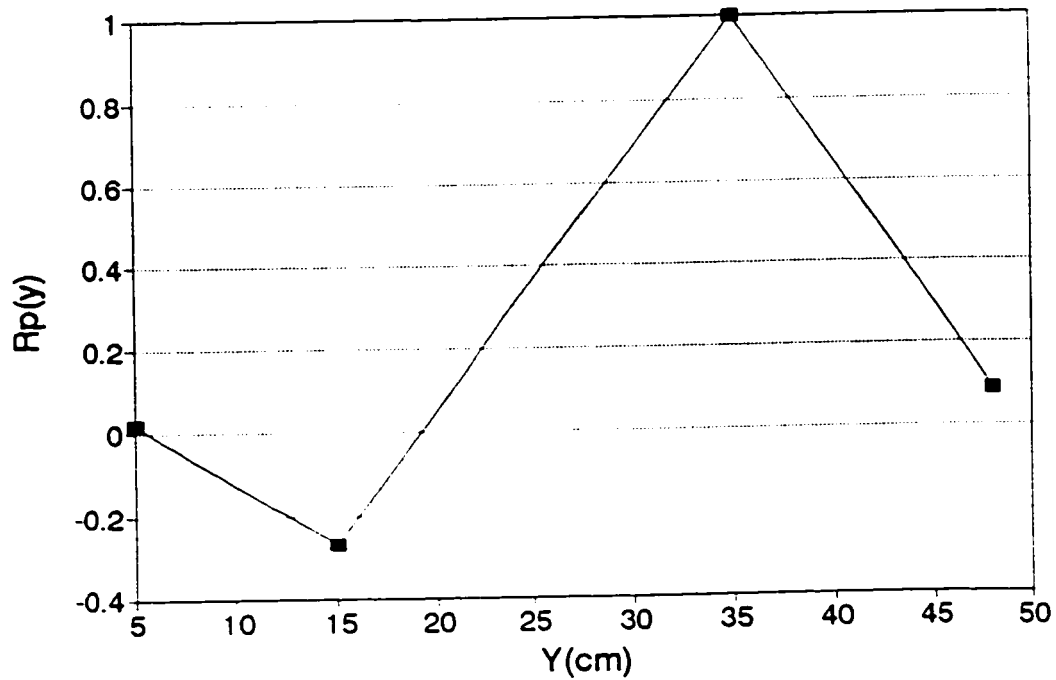


Fig. 5.99

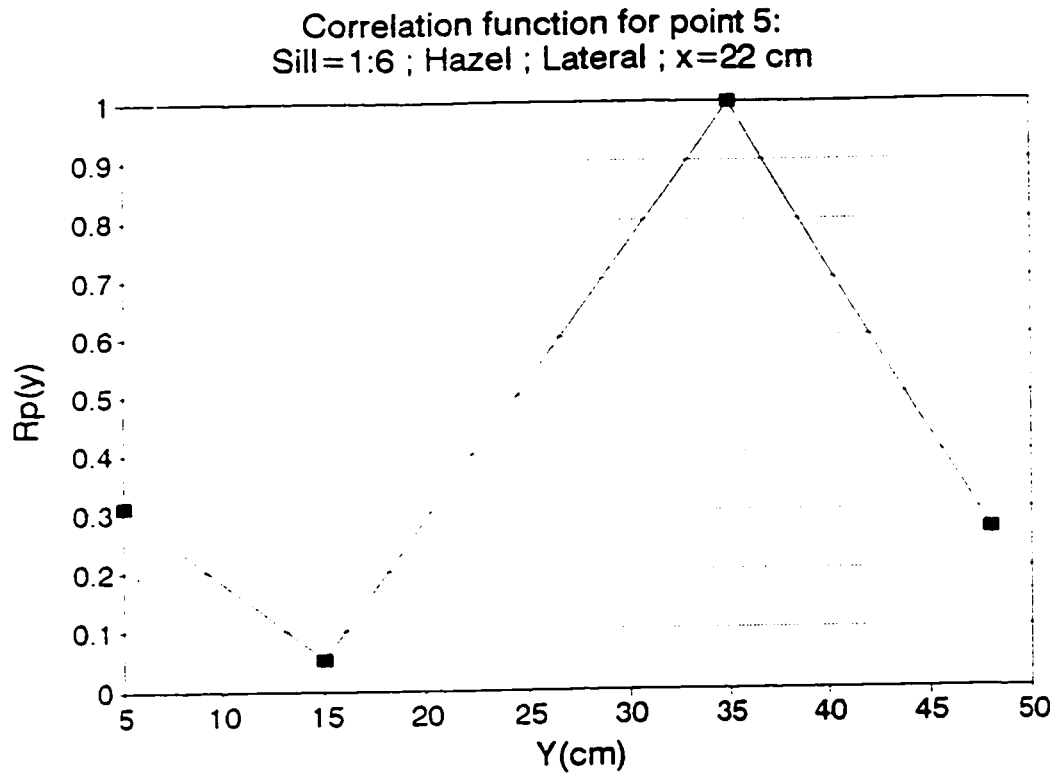


Fig. 5.100

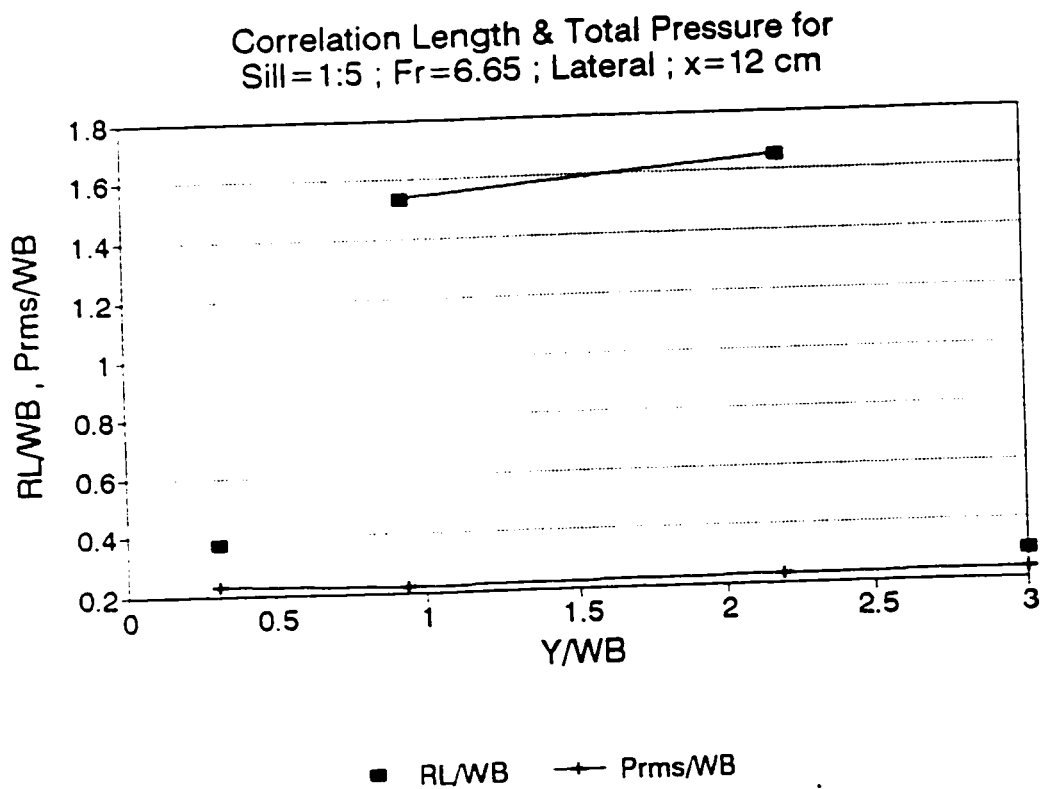


Fig. 5.101

Correlation Length & Total Pressure for
Sill=1:5 ; $Fr=6.65$; Lateral ; $x=22$ cm

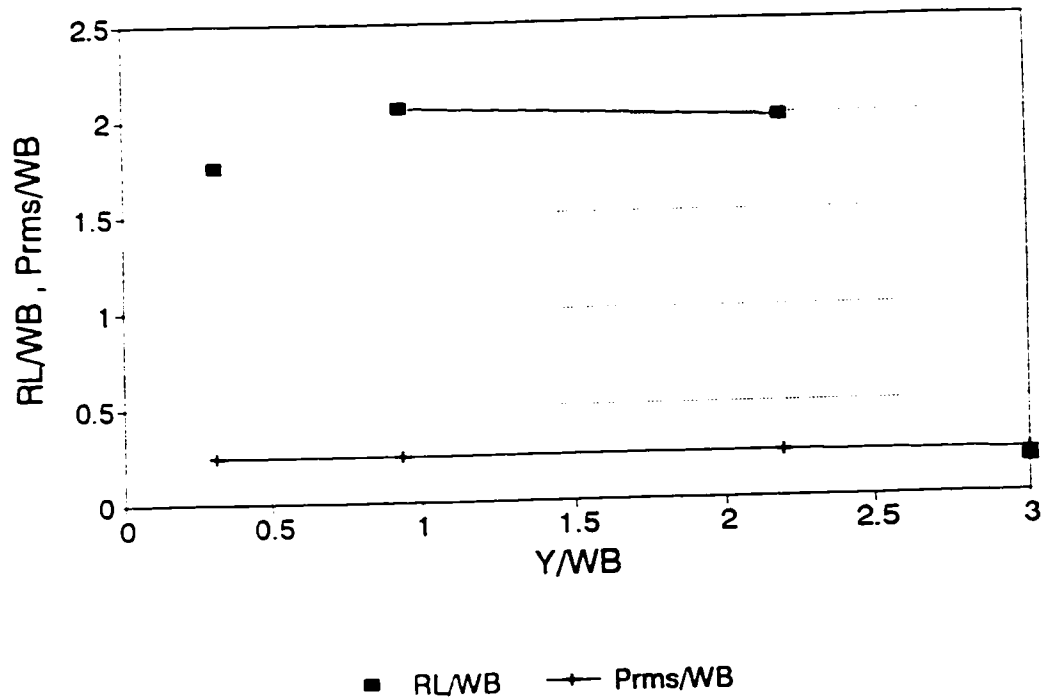


Fig. 5.102

Correlation Length & Total Pressure for
Sill=1:5 ; $Fr=5.74$; Lateral ; $x=12$ cm

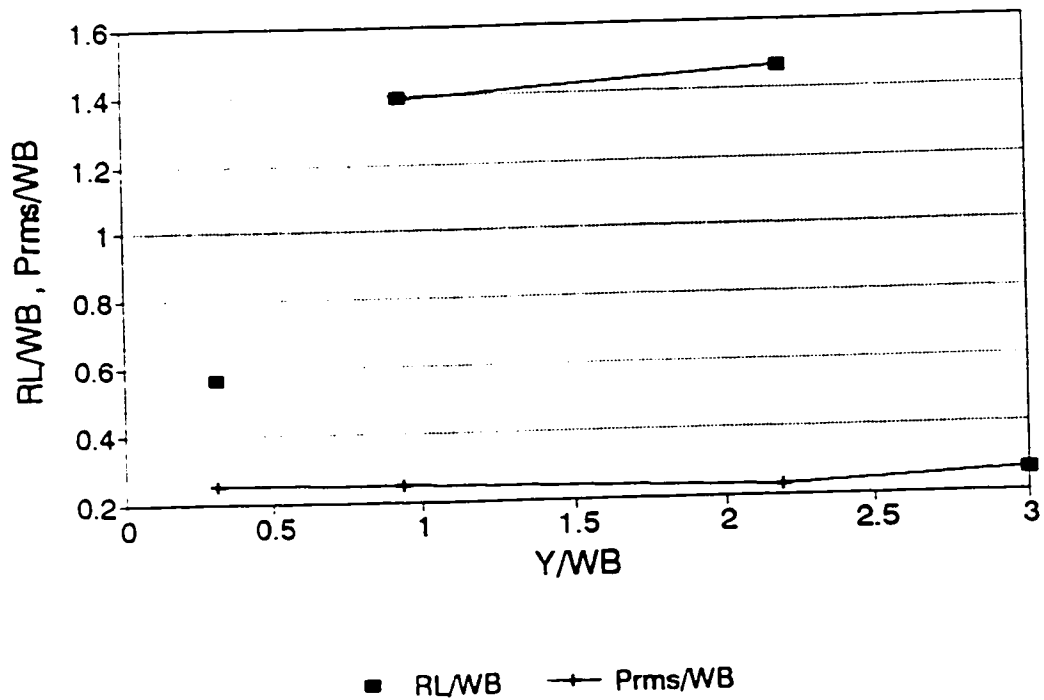


Fig. 5.103

Correlation Length & Total Pressure for
Sill=1:5 ; Fr=5.74 ; Lateral ; x=22 cm

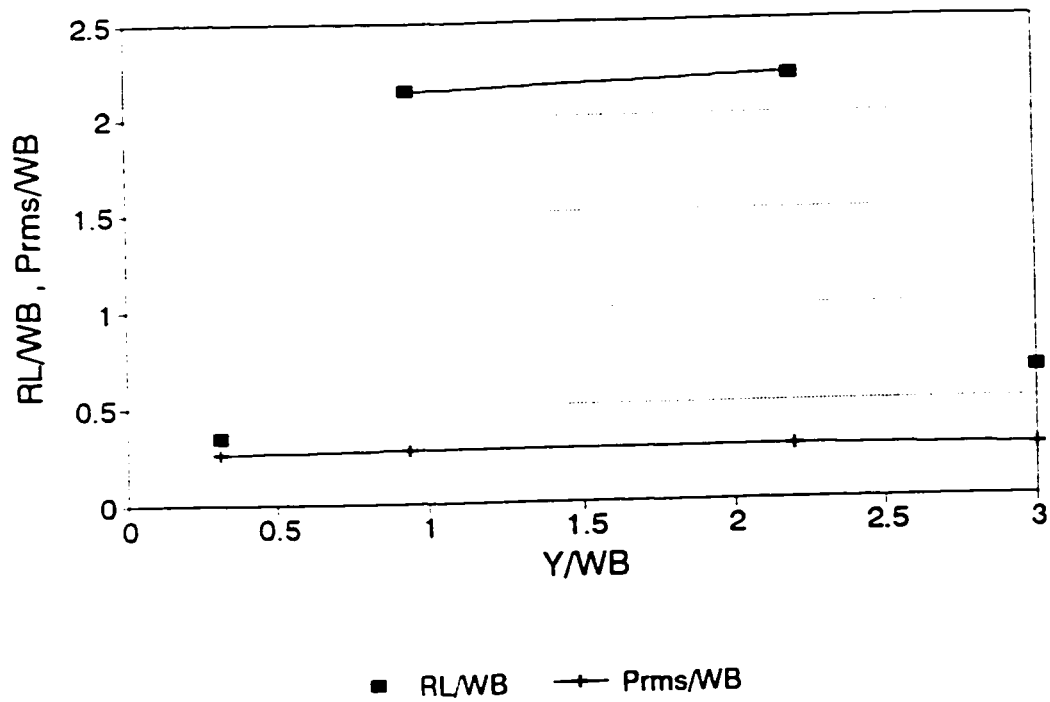


Fig. 5.104

Correlation Length & Total Pressure for
Sill=1:5 ; Fr=4.85 ; Lateral ; x=12 cm

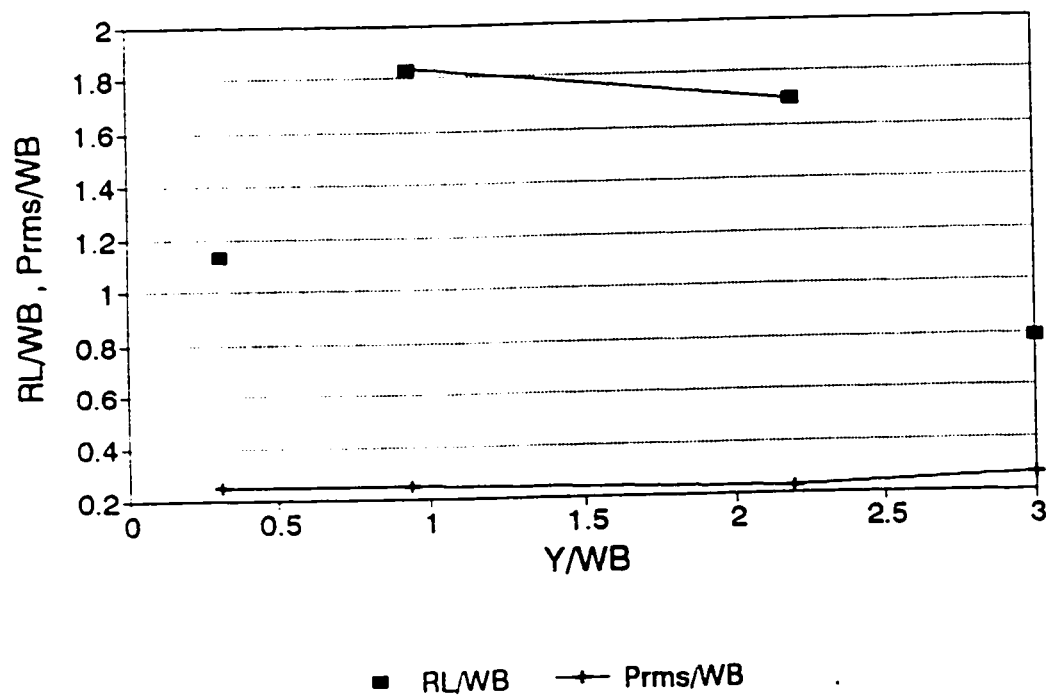


Fig. 5.105

Correlation Length & Total Pressure for
Sill=1:5 ; $Fr=4.85$; Lateral ; $x=22$ cm

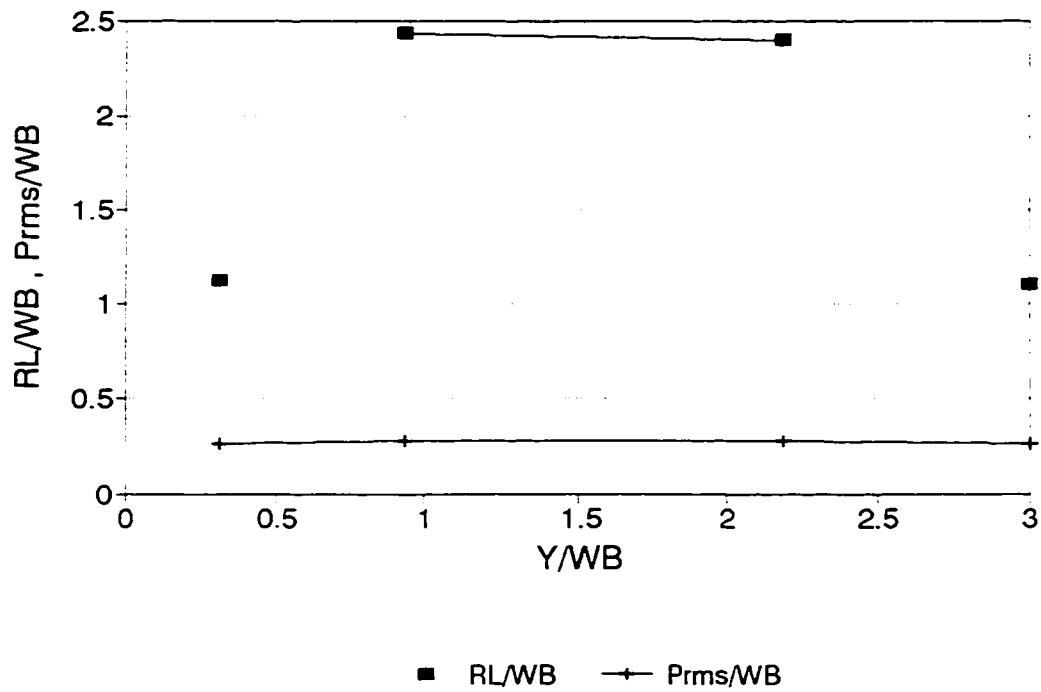


Fig. 5.106

Correlation Length & Total Pressure for
Sill=1:6 ; $Fr=6.65$; Lateral ; $x=12$ cm

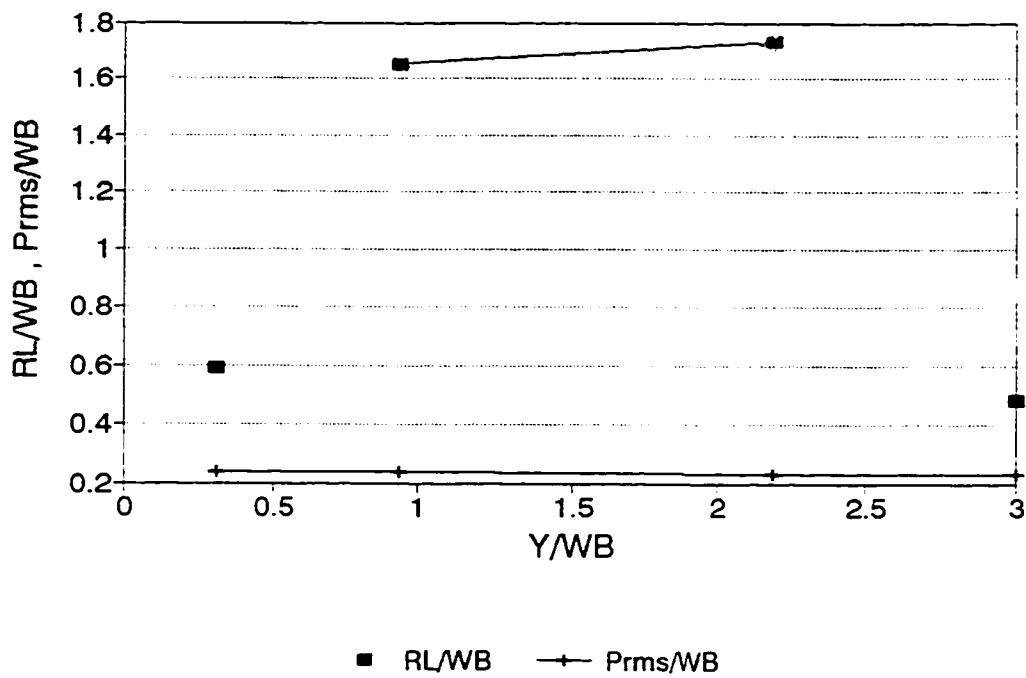


Fig. 5.107

Correlation Length & Total Pressure for
Sill=1:6 ; Fr=6.65 ; Lateral ; x=22 cm

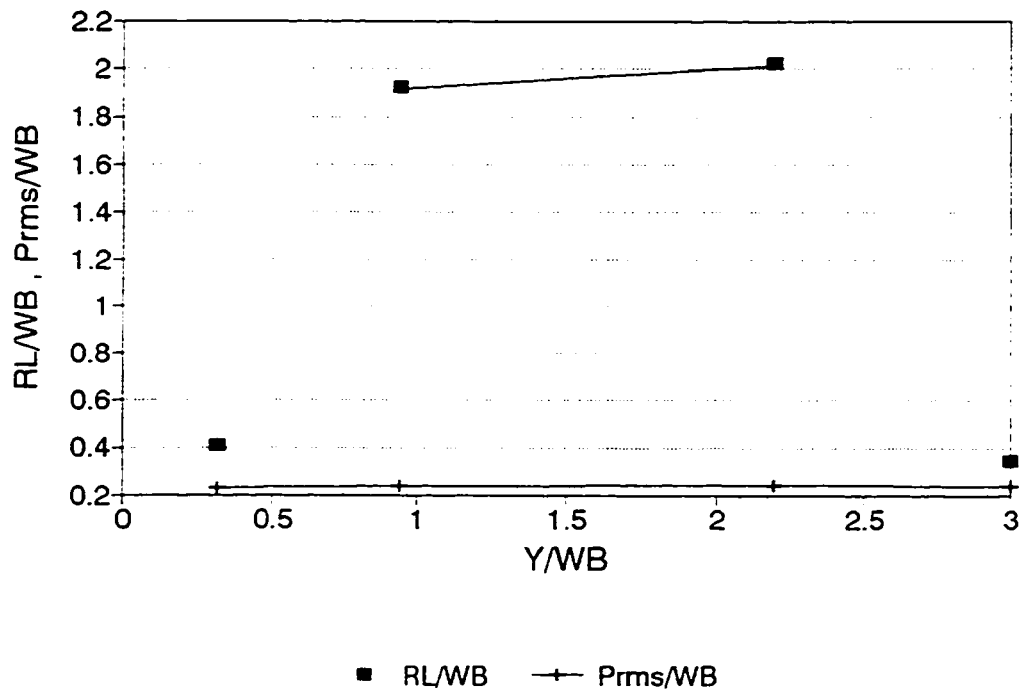


Fig. 5.108

Correlation Length & Total Pressure for
Sill=1:6 ; Fr=5.74 ; Lateral ; x=12 cm

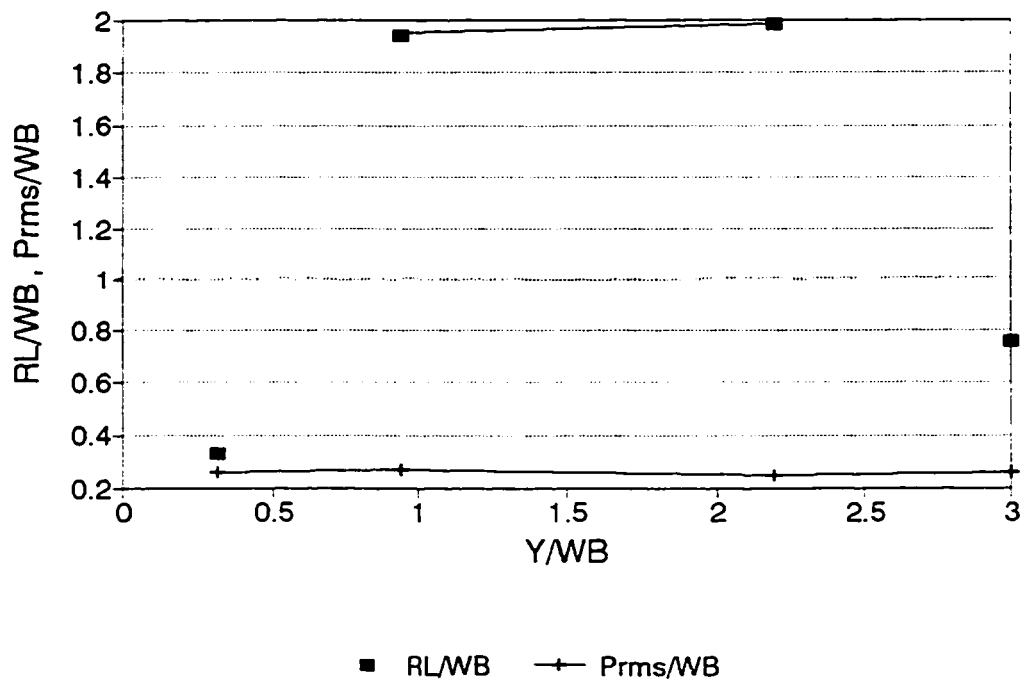


Fig. 5.109

Correlation Length & Total Pressure for
Sill=1:6 ; Fr=5.74 ; Lateral ; x=22 cm

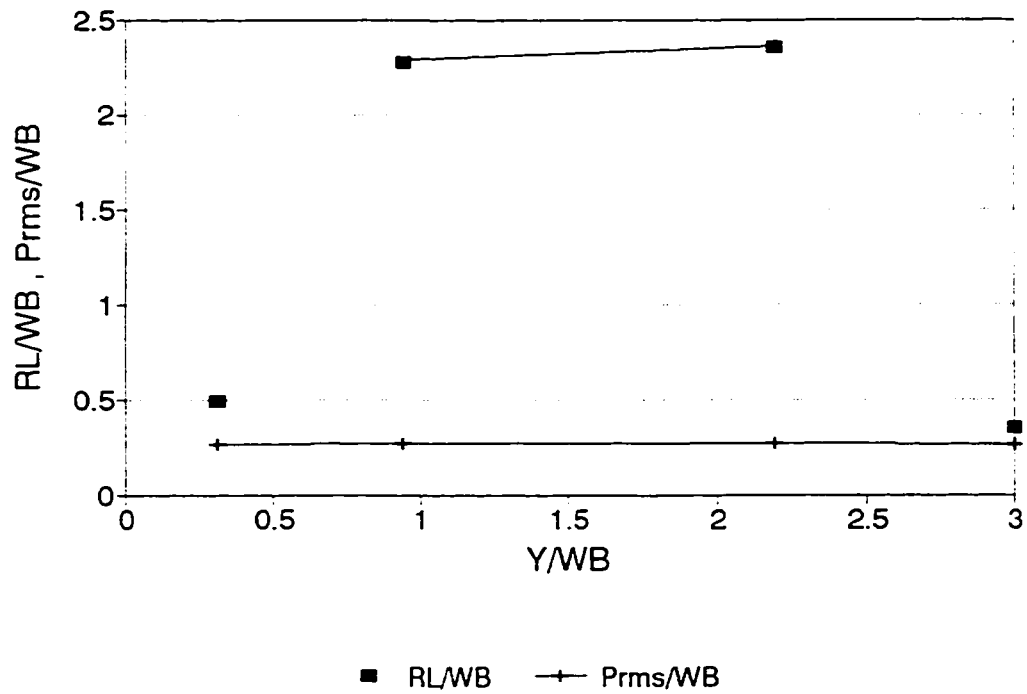


Fig. 5.110

Correlation Length & Total Pressure for
Sill=1:6 ; Fr=4.85 ; Lateral ; x=12 cm

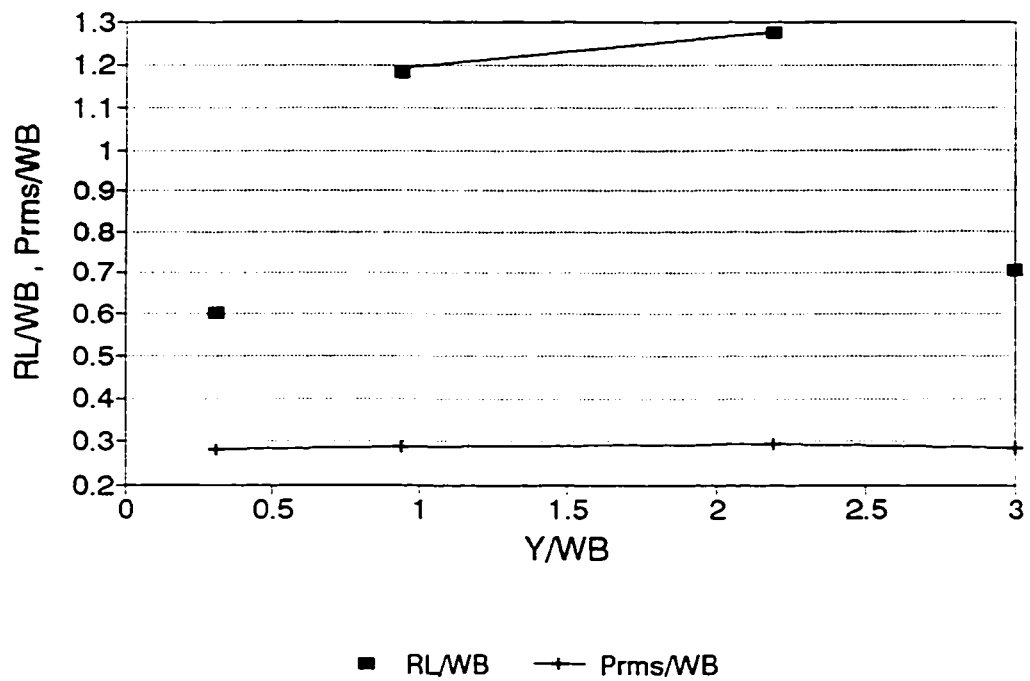


Fig. 5.111

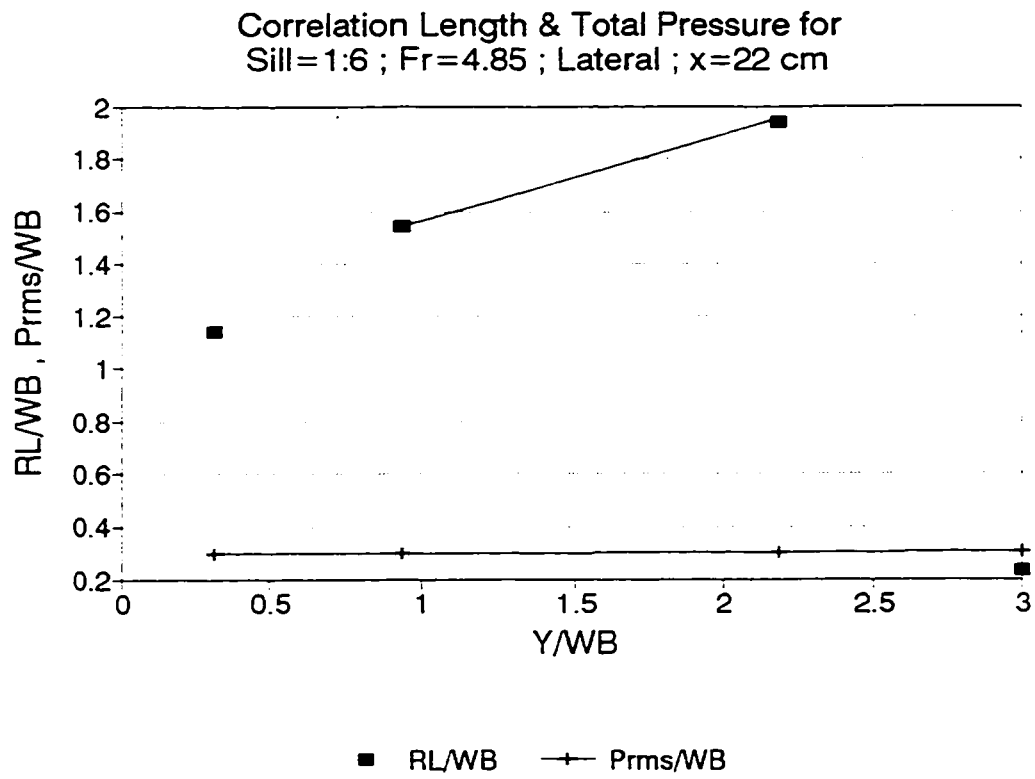


Fig. 5.112

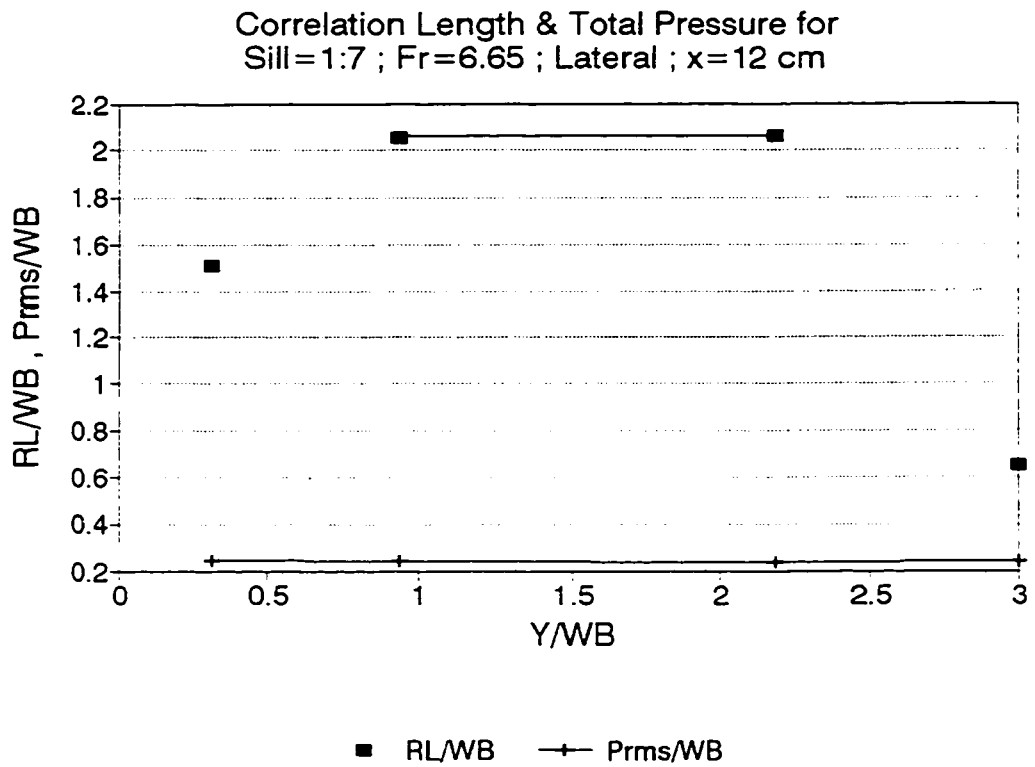


Fig. 5.114

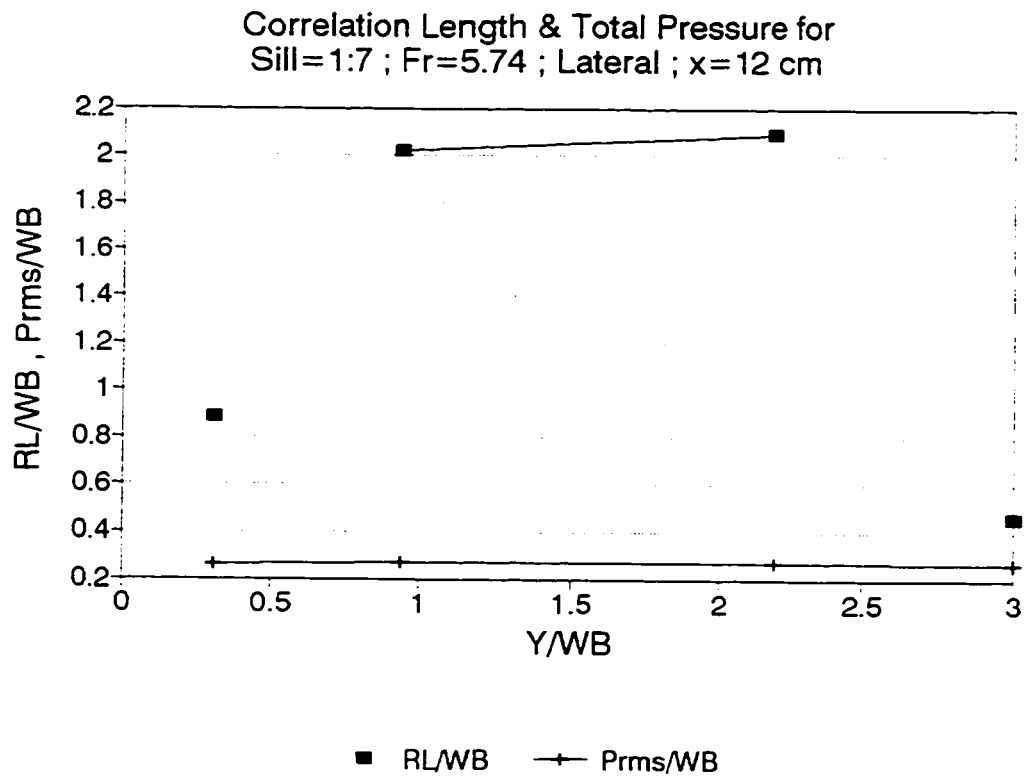


Fig. 5.113

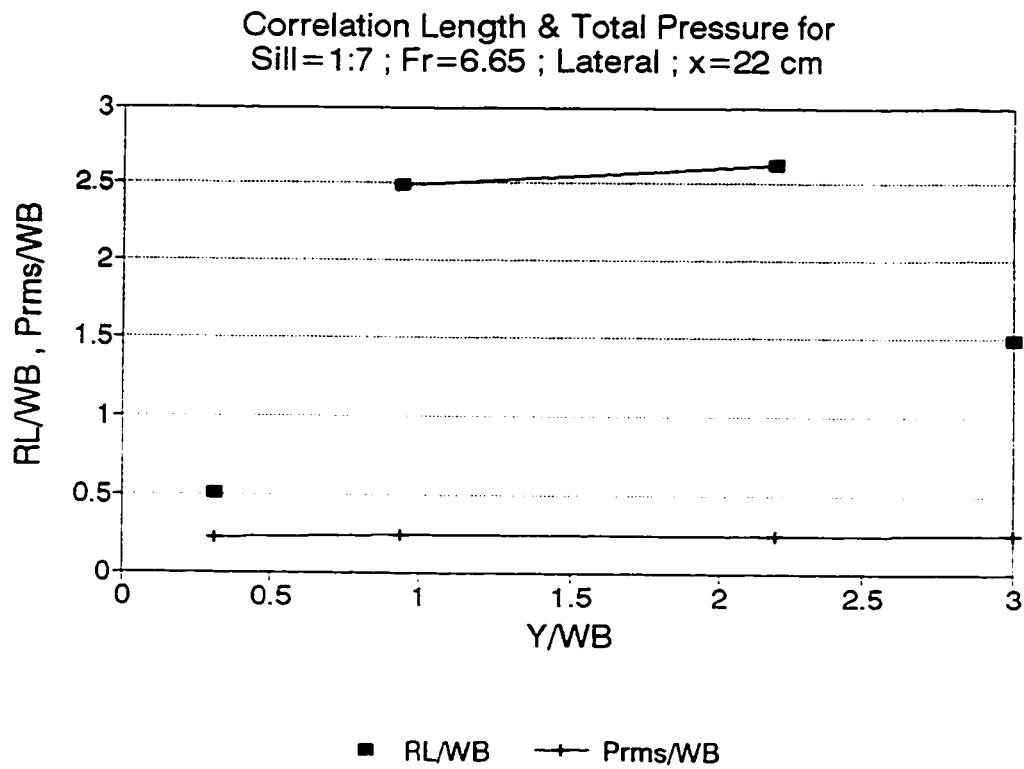


Fig. 5.115

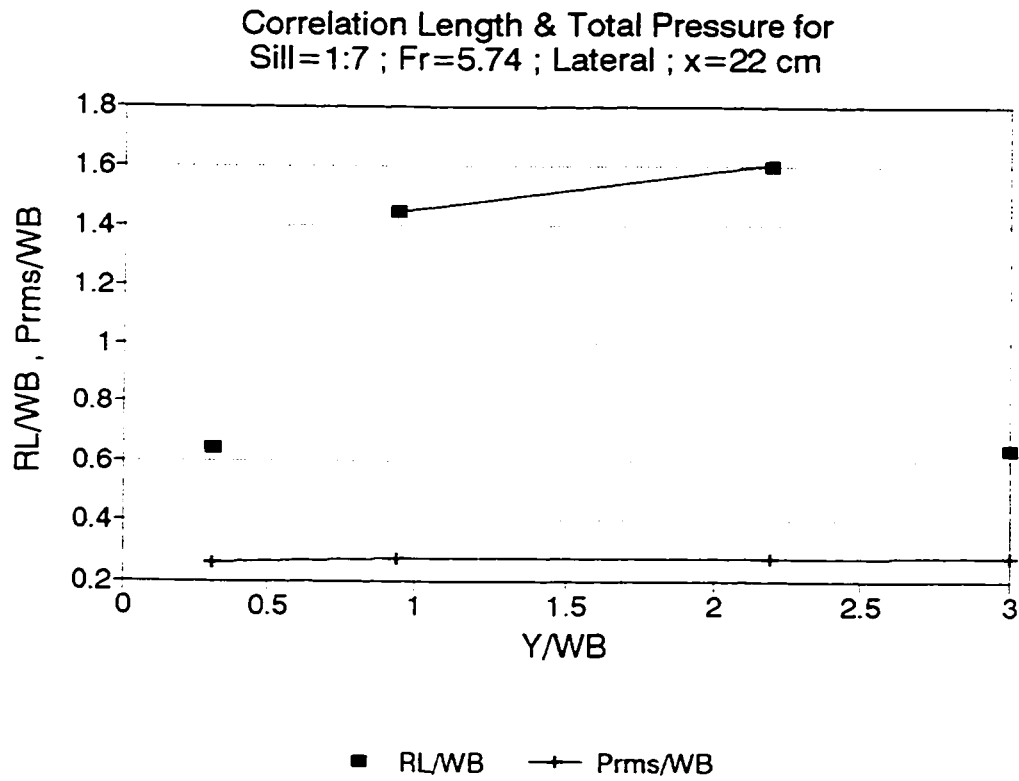


Fig. 5.116

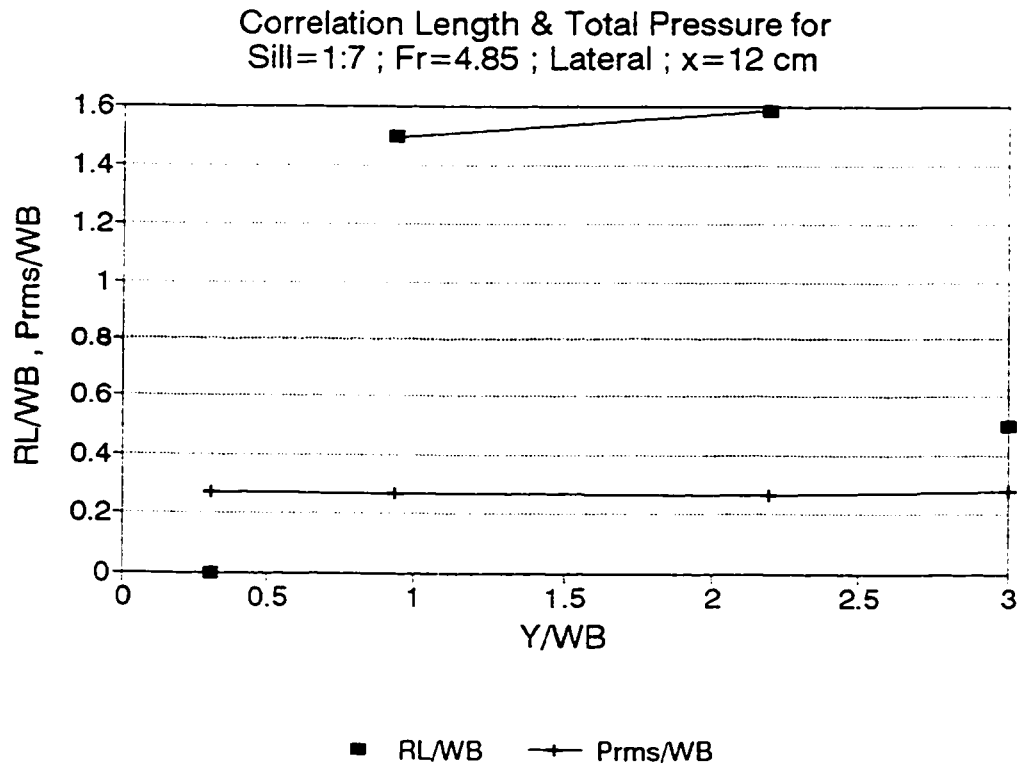


Fig. 5.117

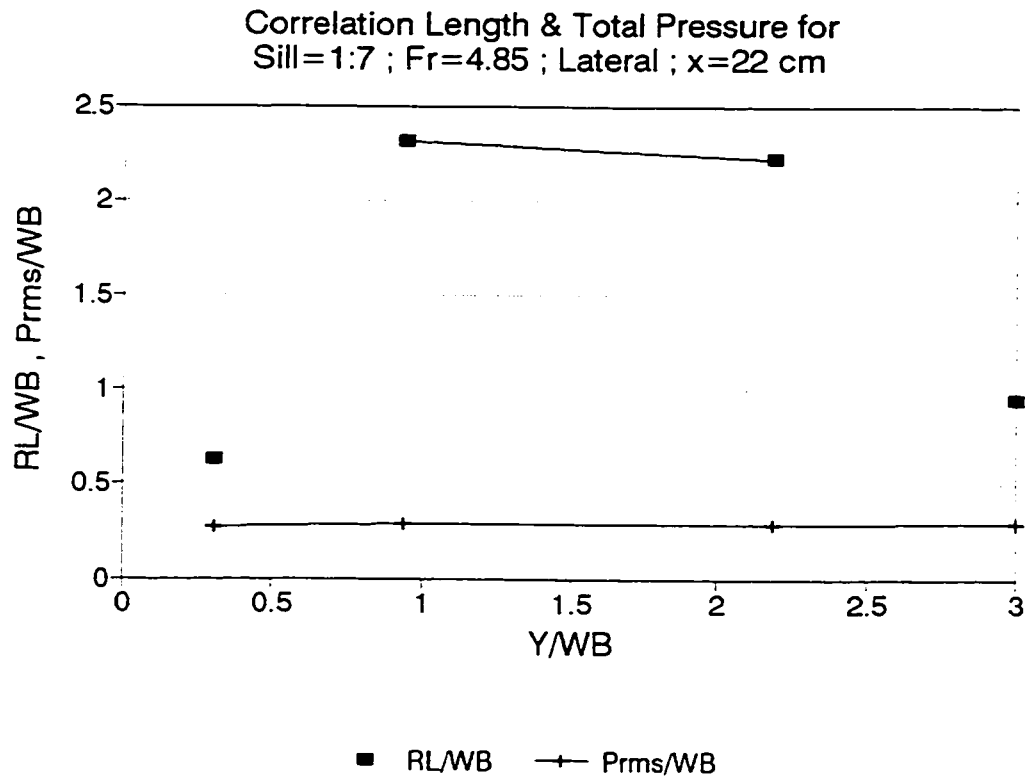


Fig. 5.118

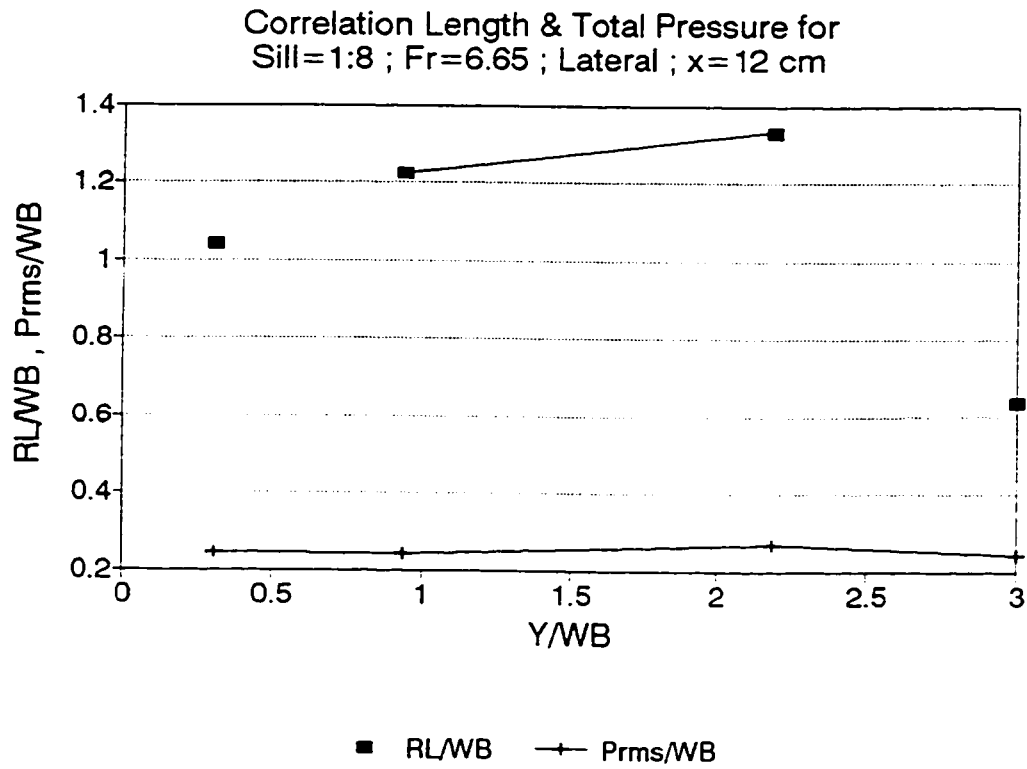


Fig. 5.119

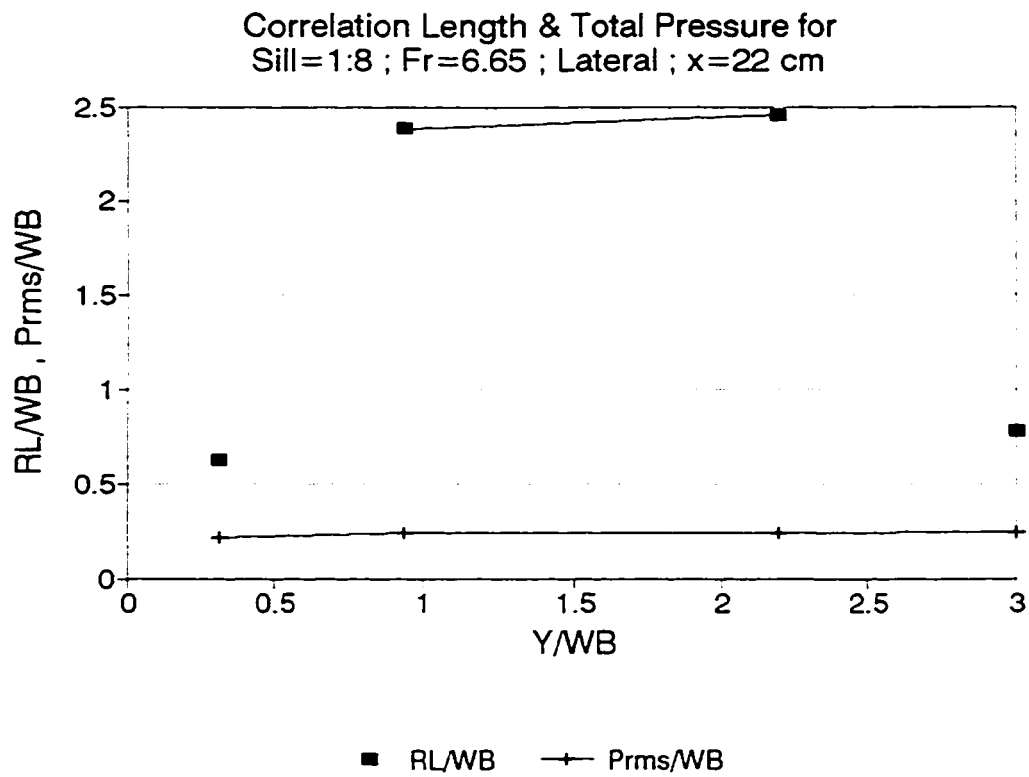


Fig. 5.120

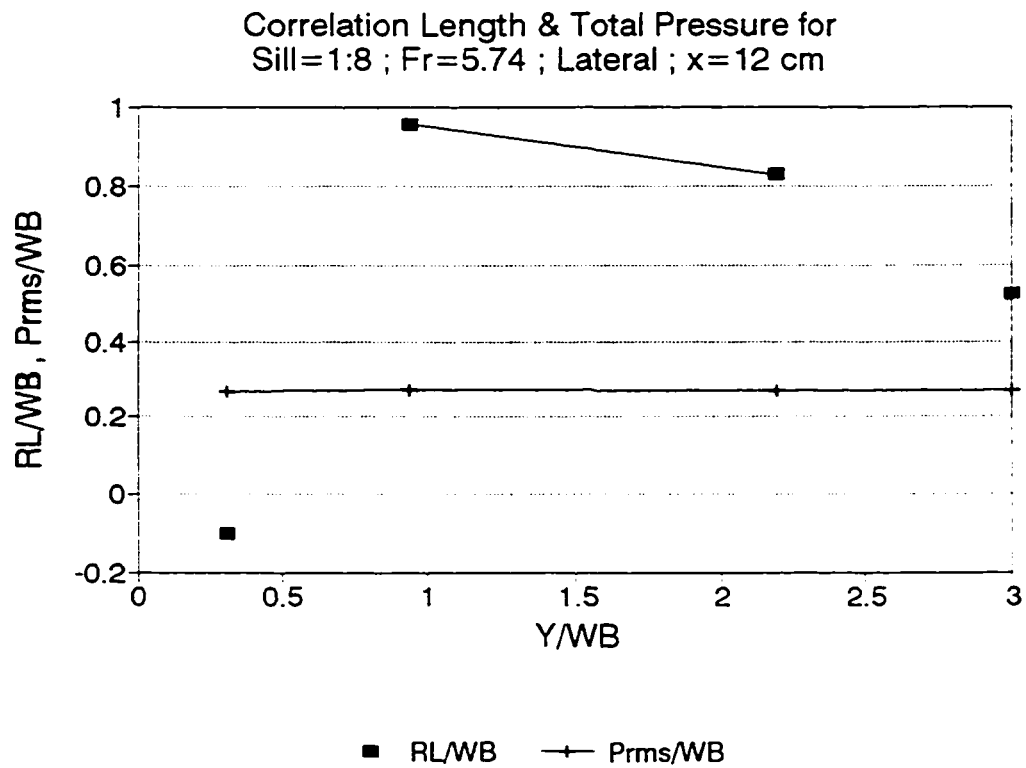


Fig. 5.121

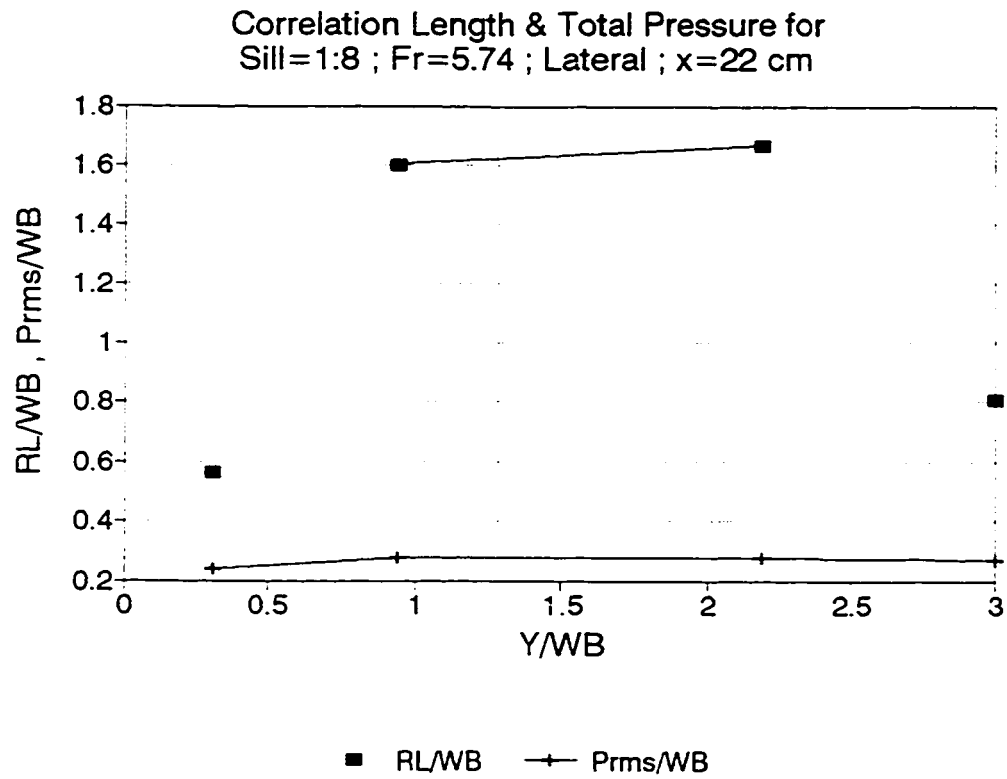


Fig. 5.122

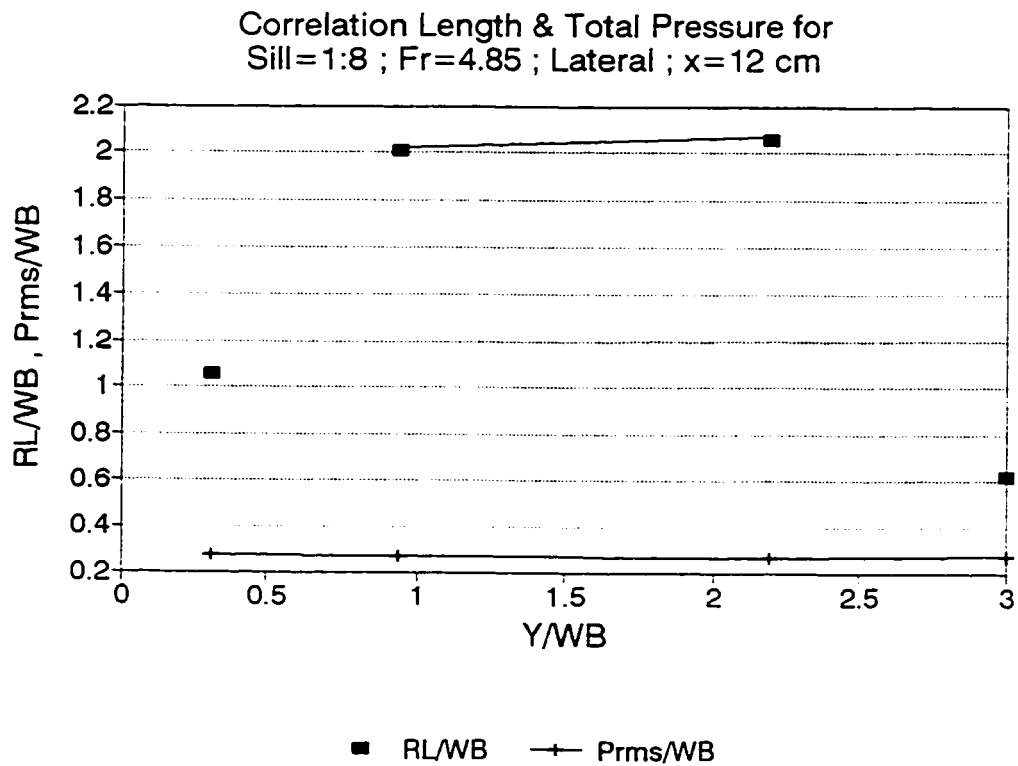


Fig. 5.123

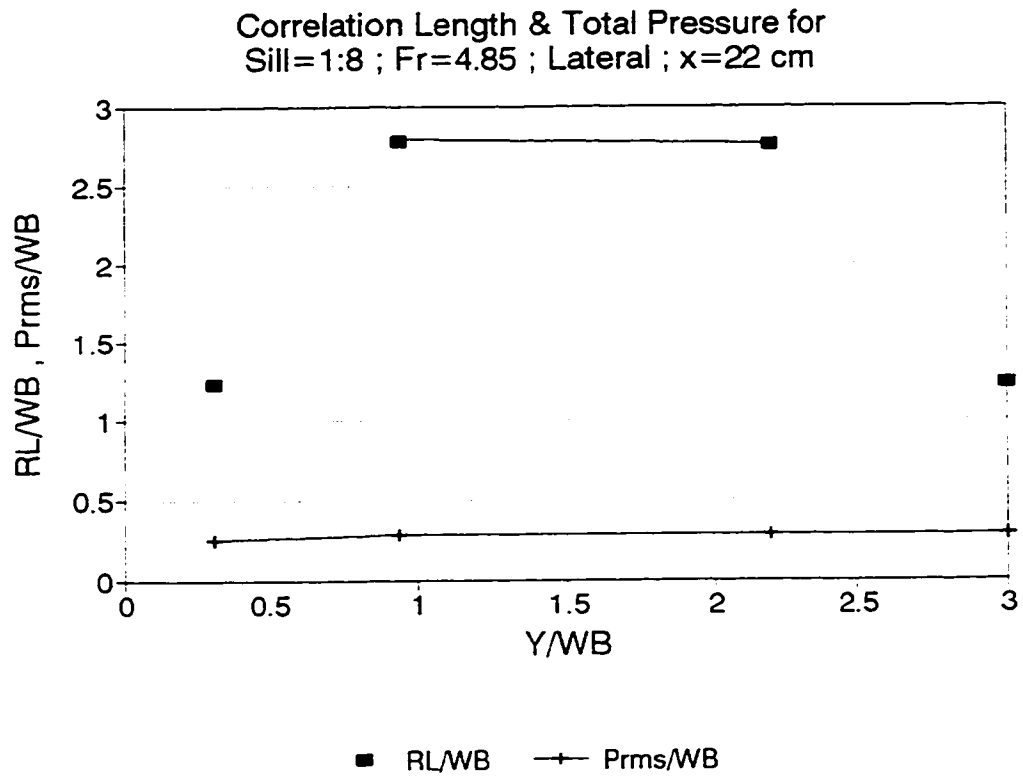


Fig. 5.124

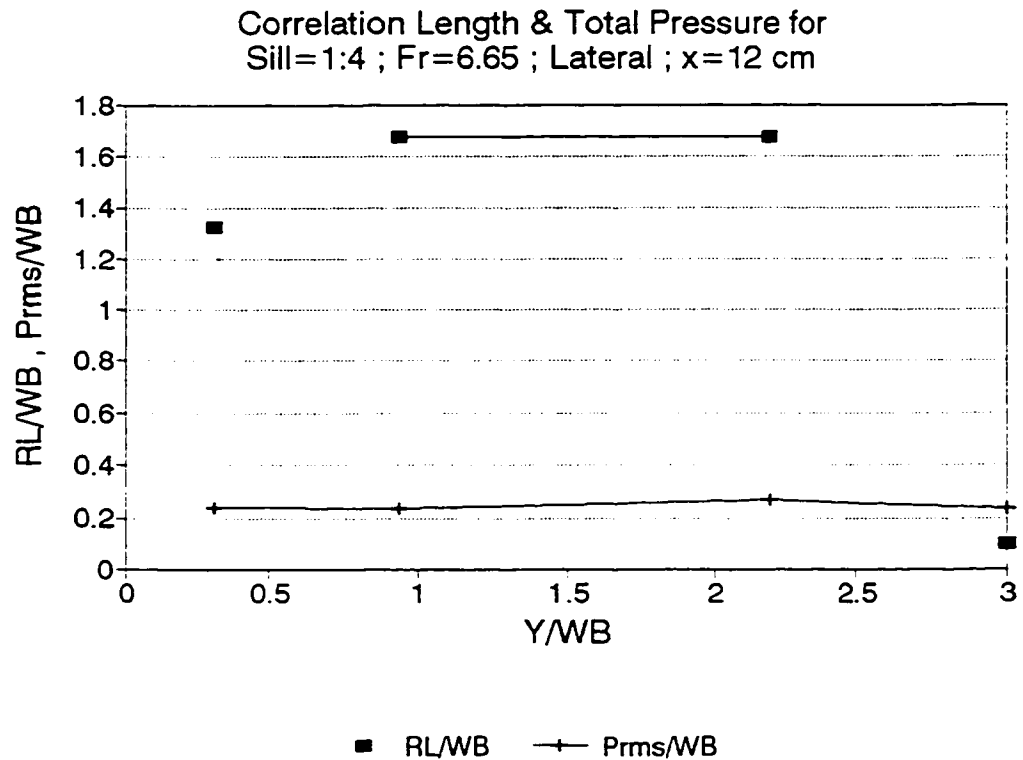


Fig. 5.125

Correlation Length & Total Pressure for
Sill=1:4 ; Fr=6.65 ; Lateral ; x=22 cm

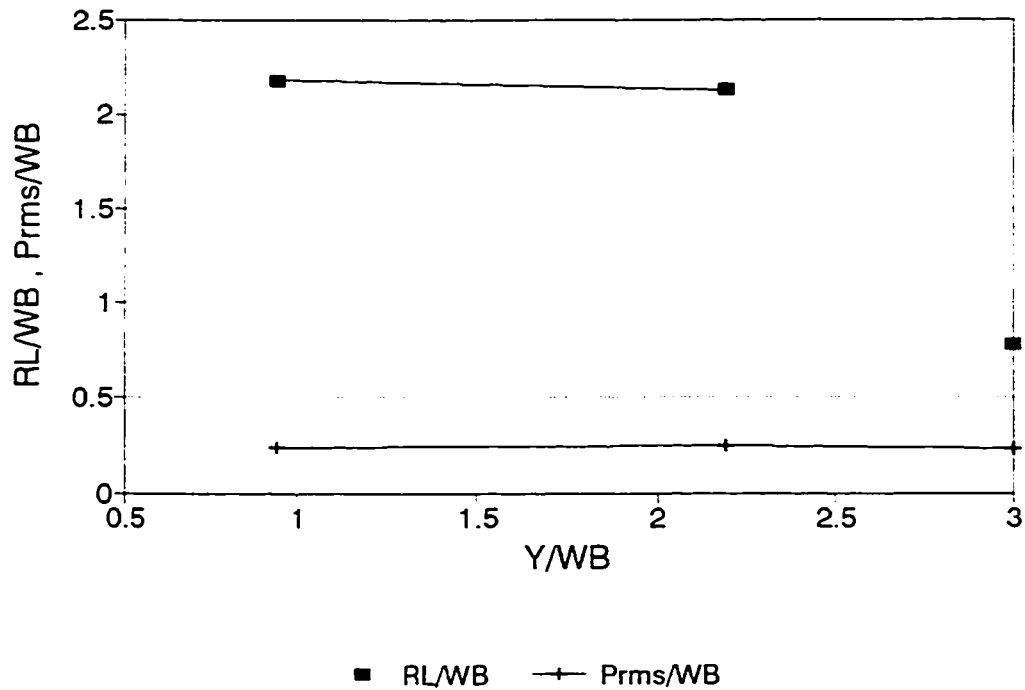


Fig. 5.126

Correlation Length & Total Pressure for
Sill=1:4 ; Fr=5.74 ; Lateral ; x=12 cm

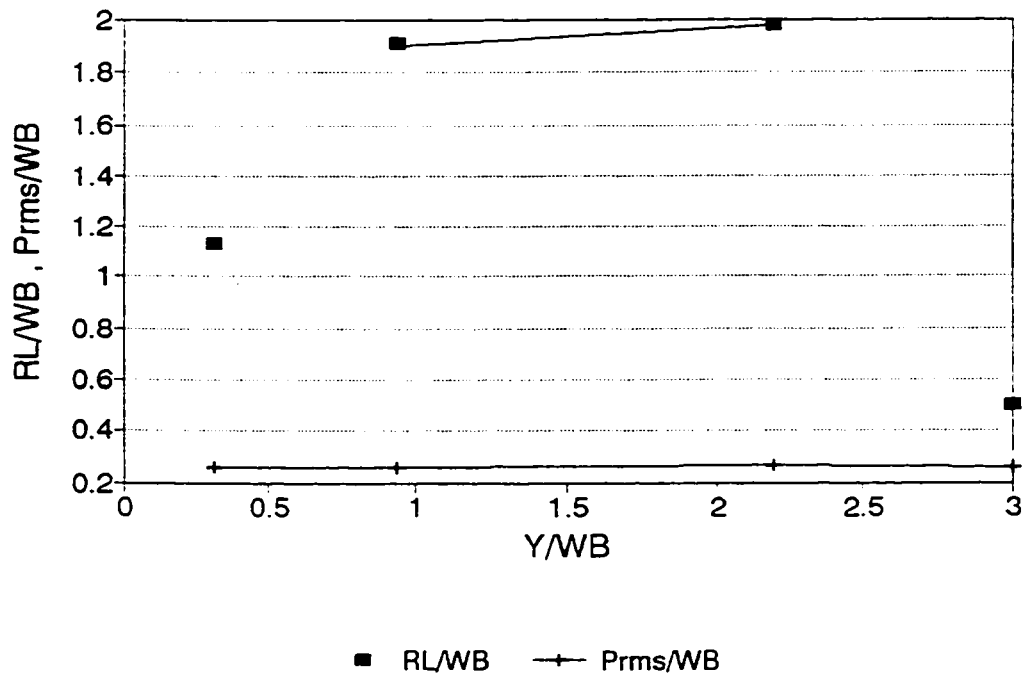


Fig. 5.127

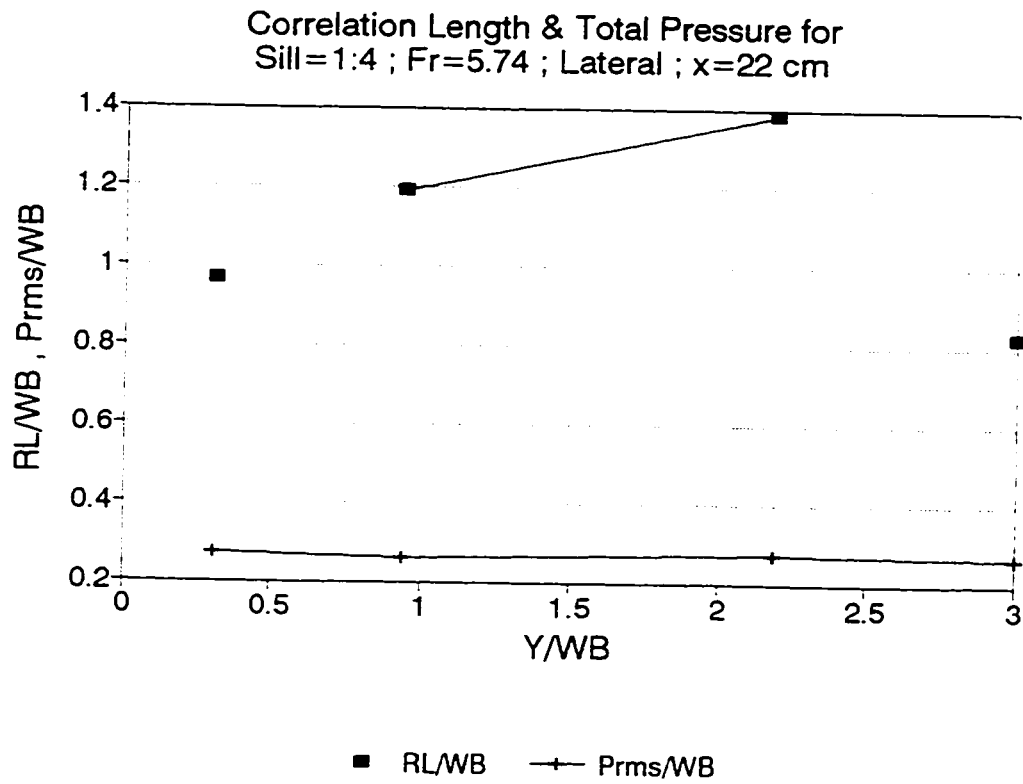


Fig. 5.128

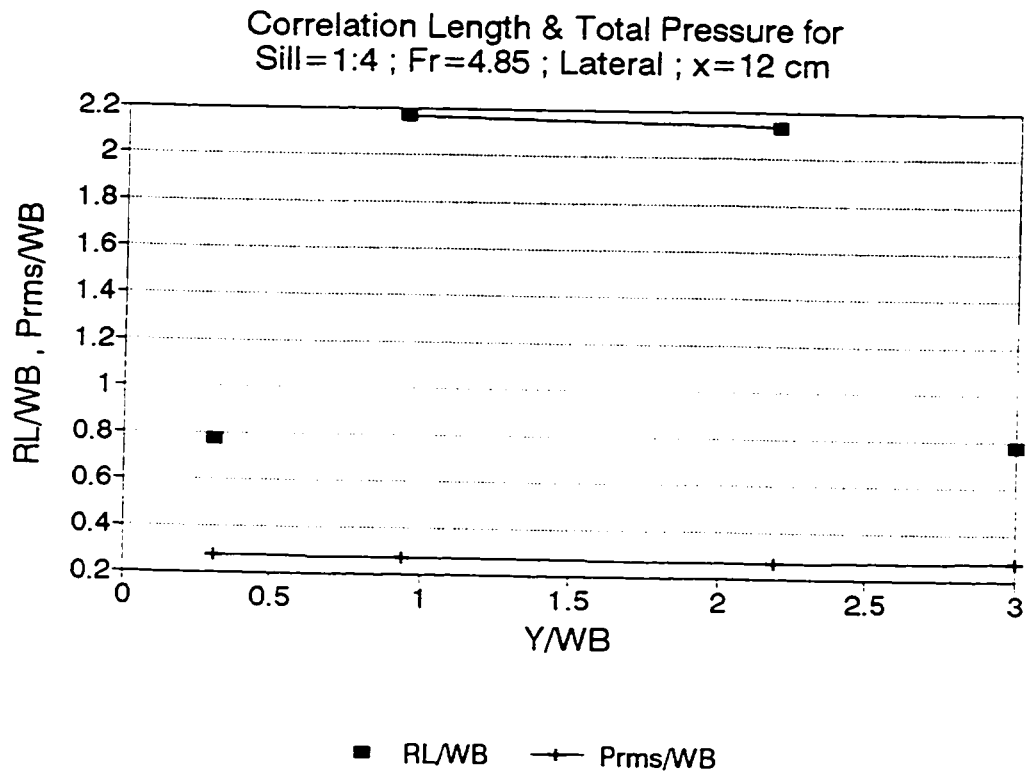


Fig. 5.129

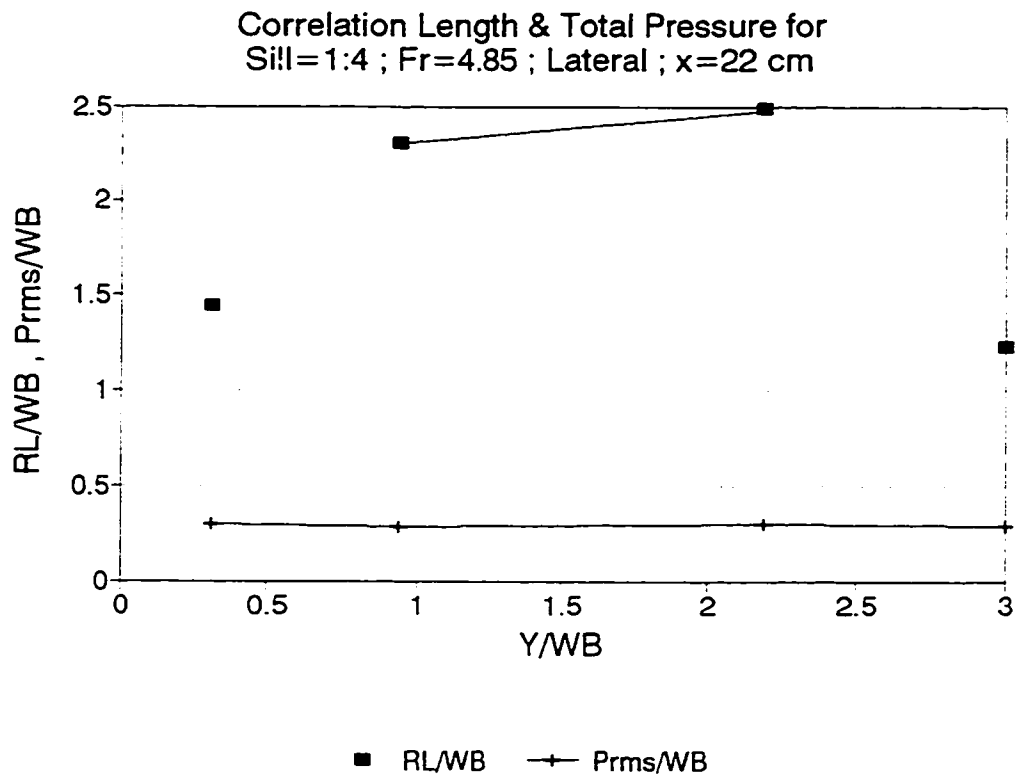


Fig. 5.130

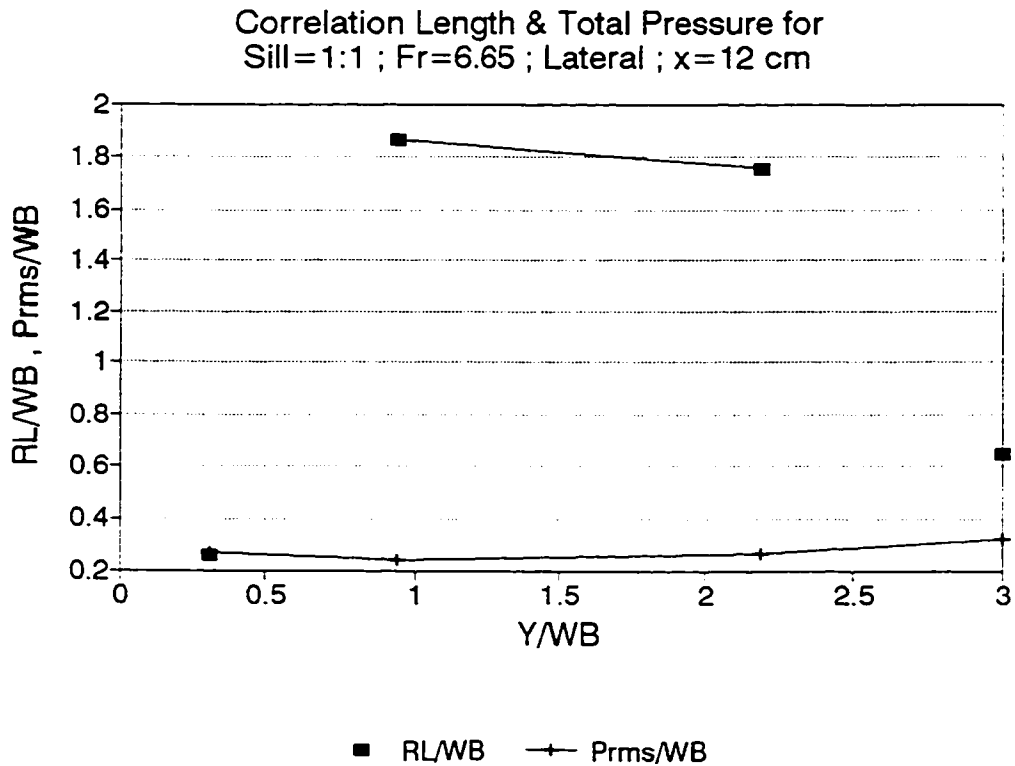


Fig. 5.131

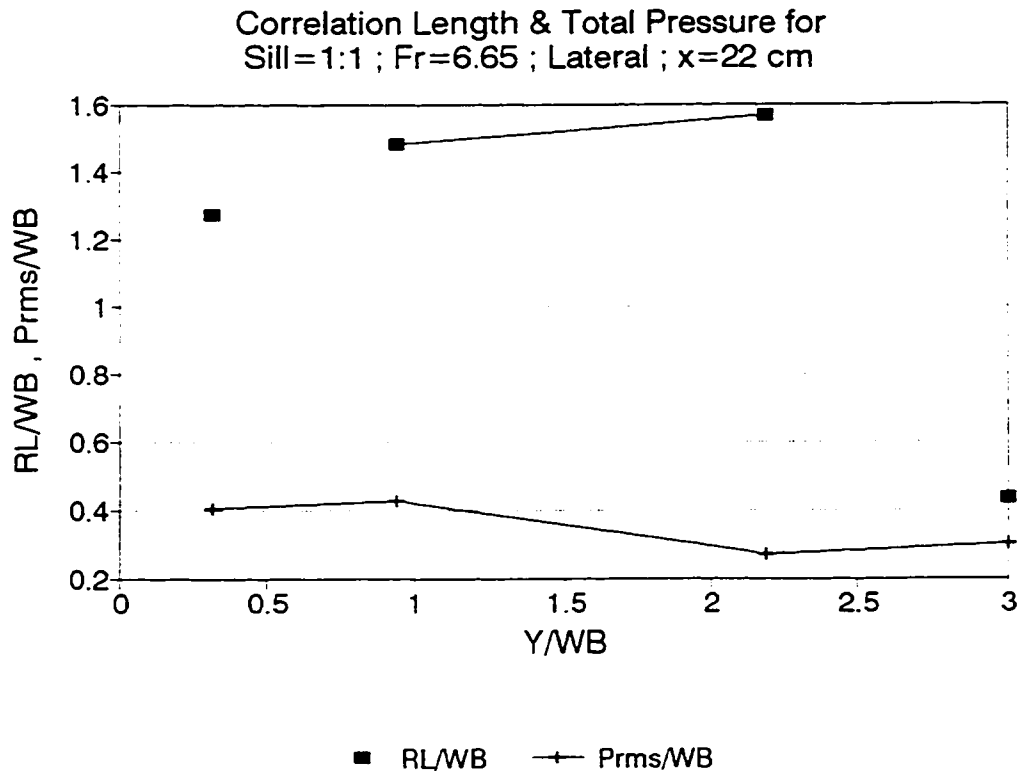


Fig. 5.132

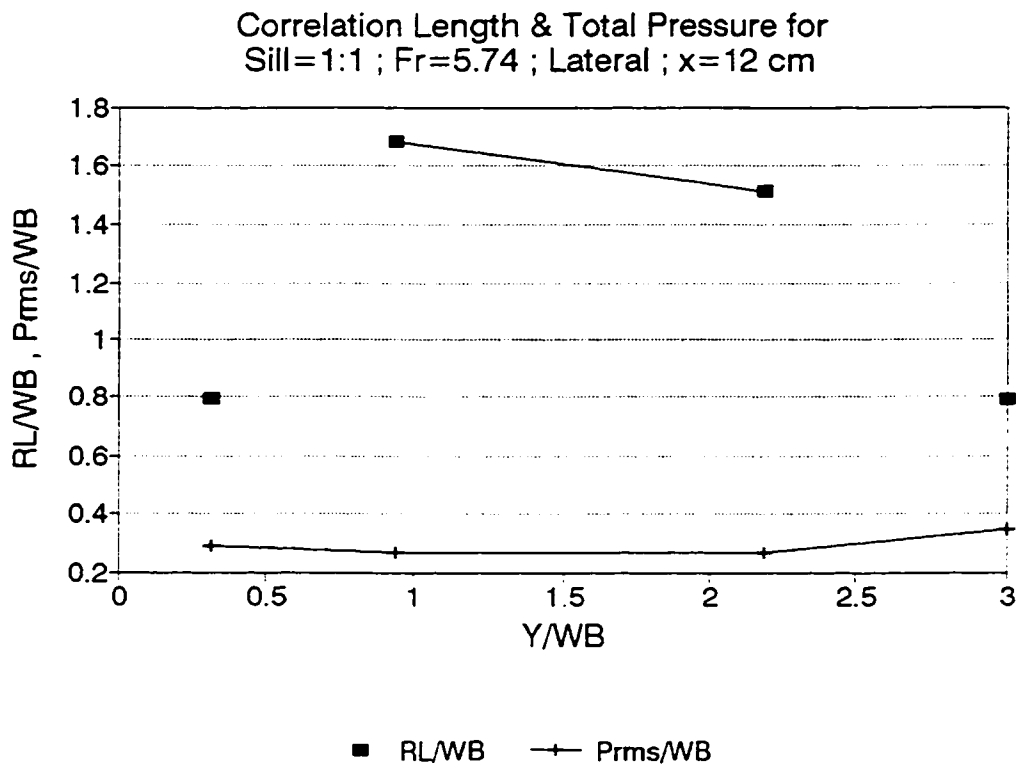


Fig. 5.133

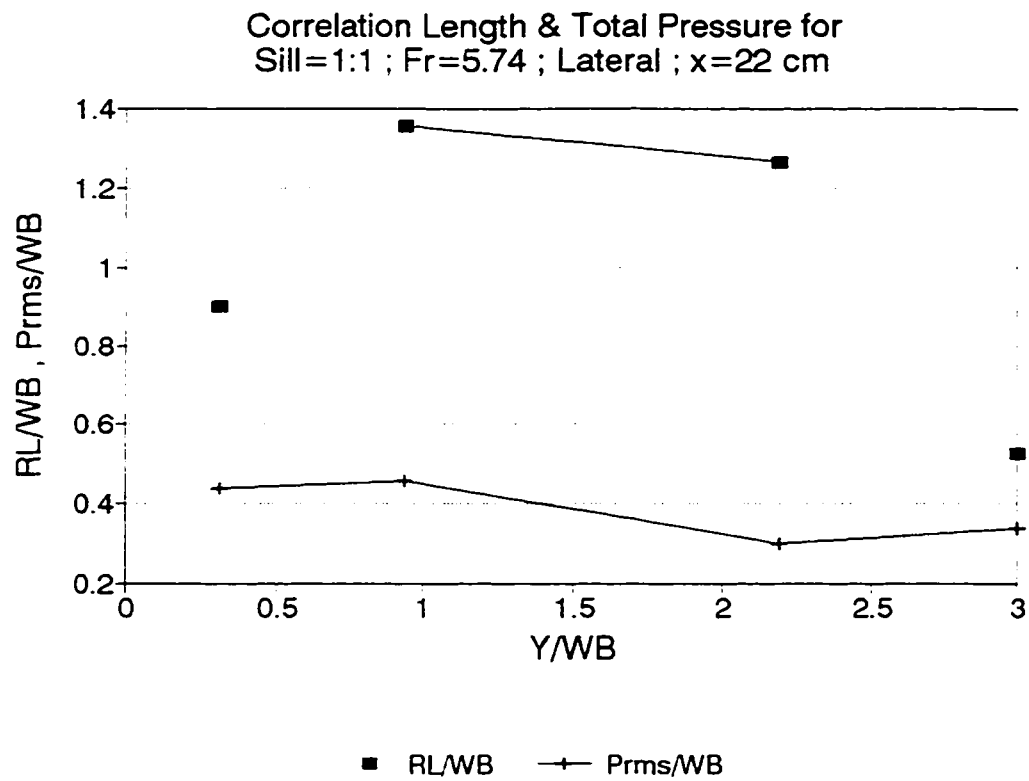


Fig. 5.134

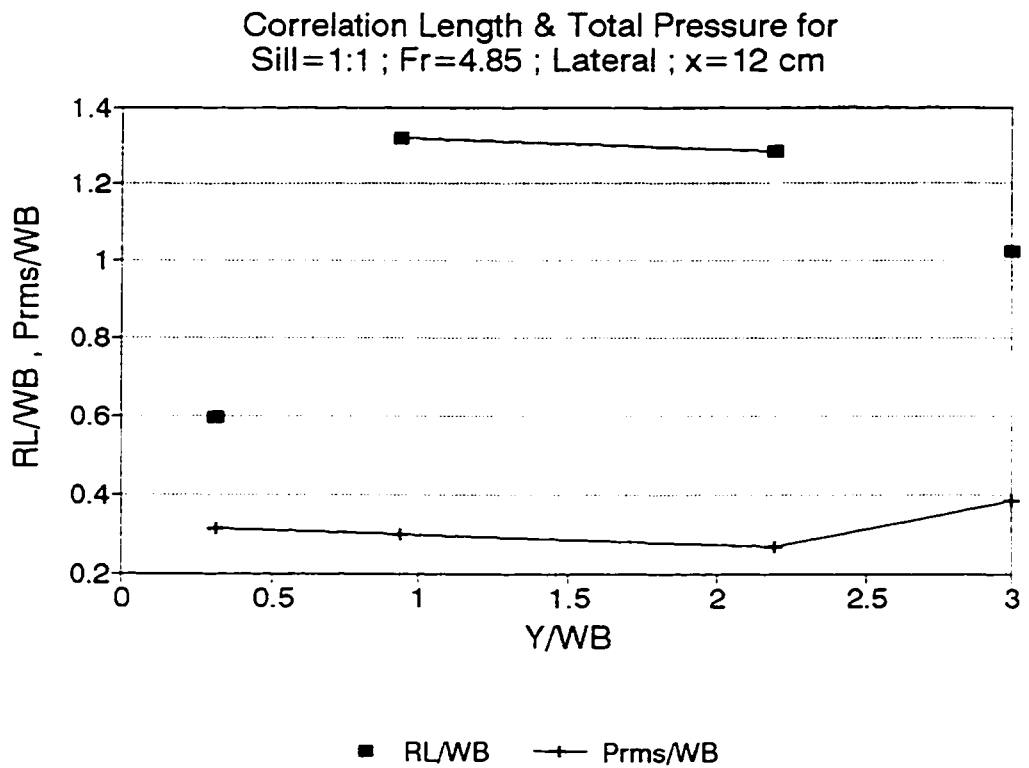


Fig. 5.135

Correlation Length & Total Pressure for
Sill=1:1 ; Fr=4.85 ; Lateral ; x=22 cm

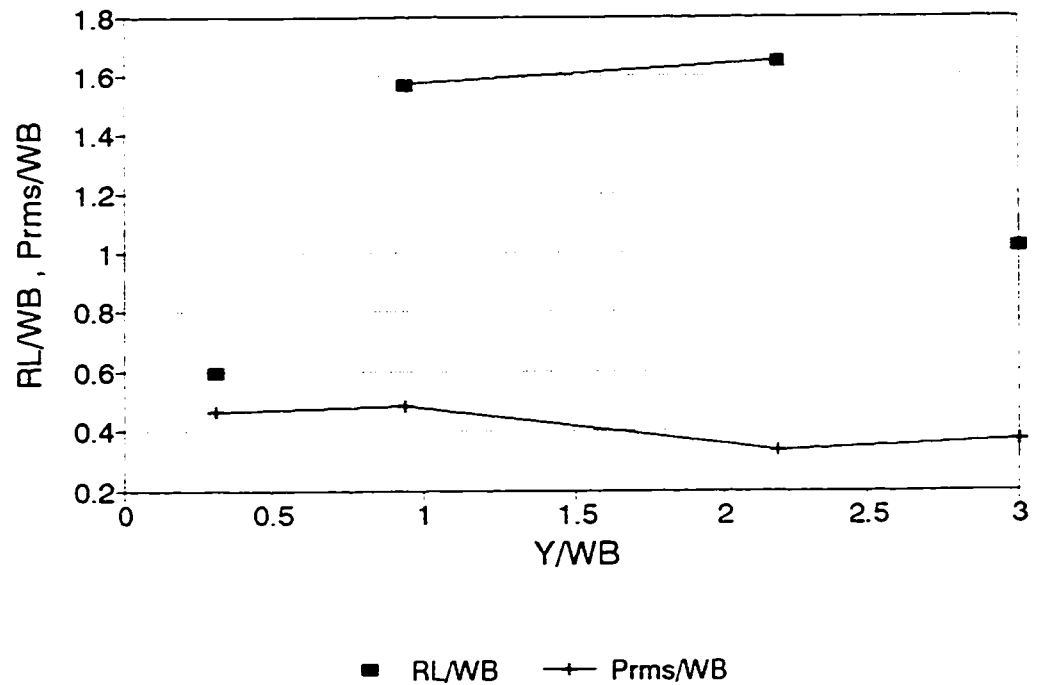


Fig. 5.136

Correlation Length & Total Pressure for
Sill=1:2 ; Fr=6.65 ; Lateral ; x=12 cm

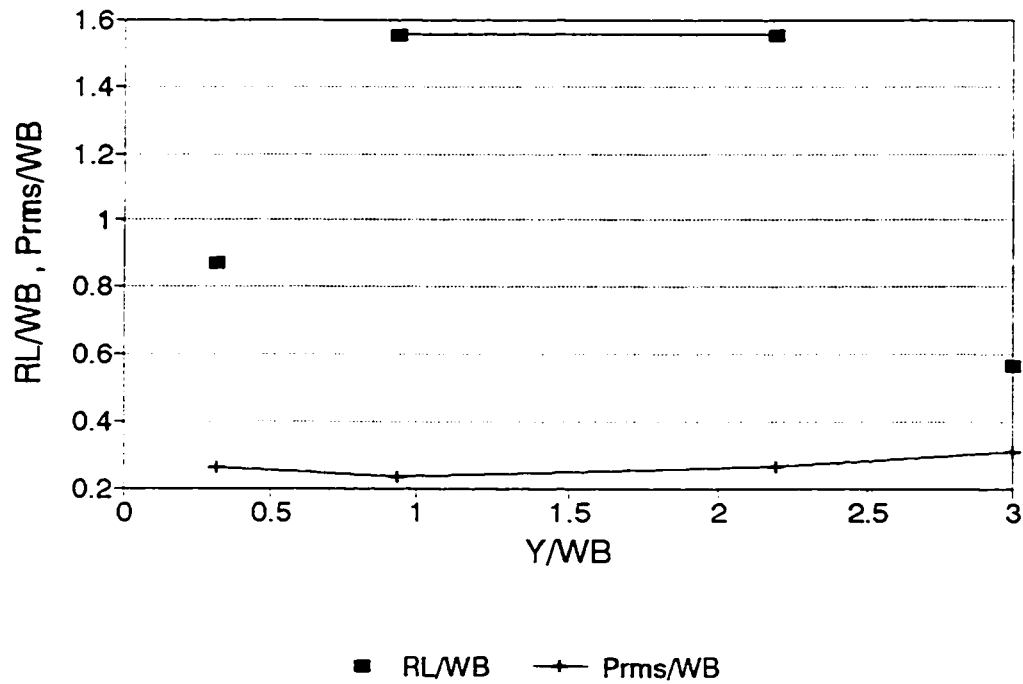


Fig. 5.137

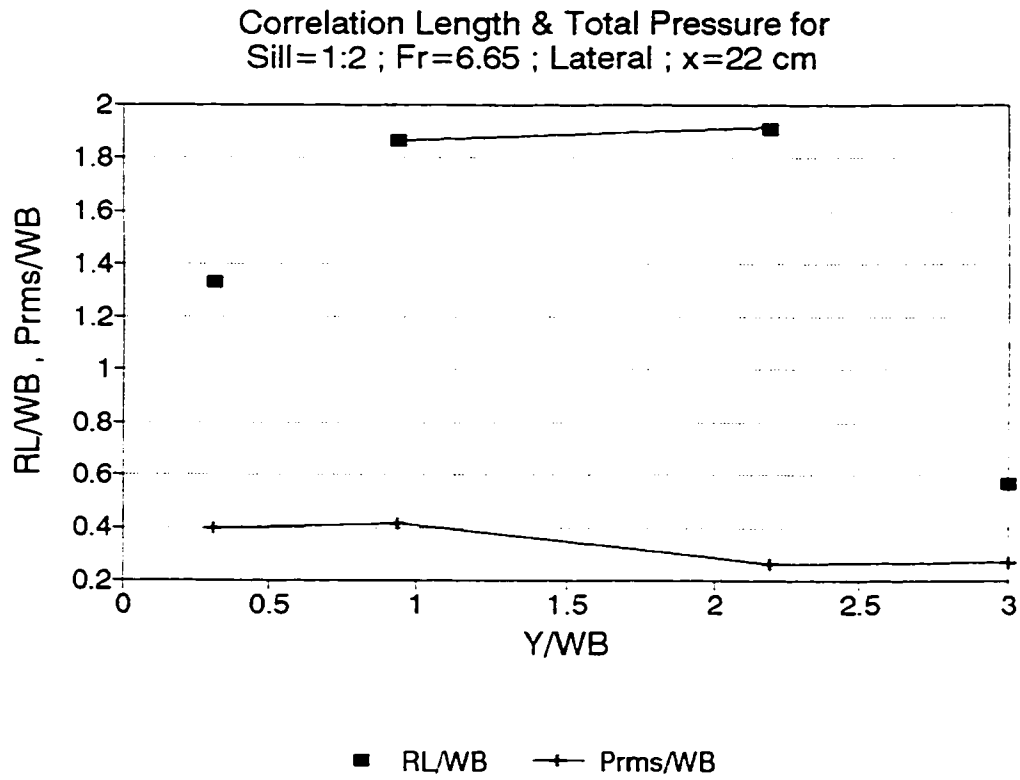


Fig. 5.138

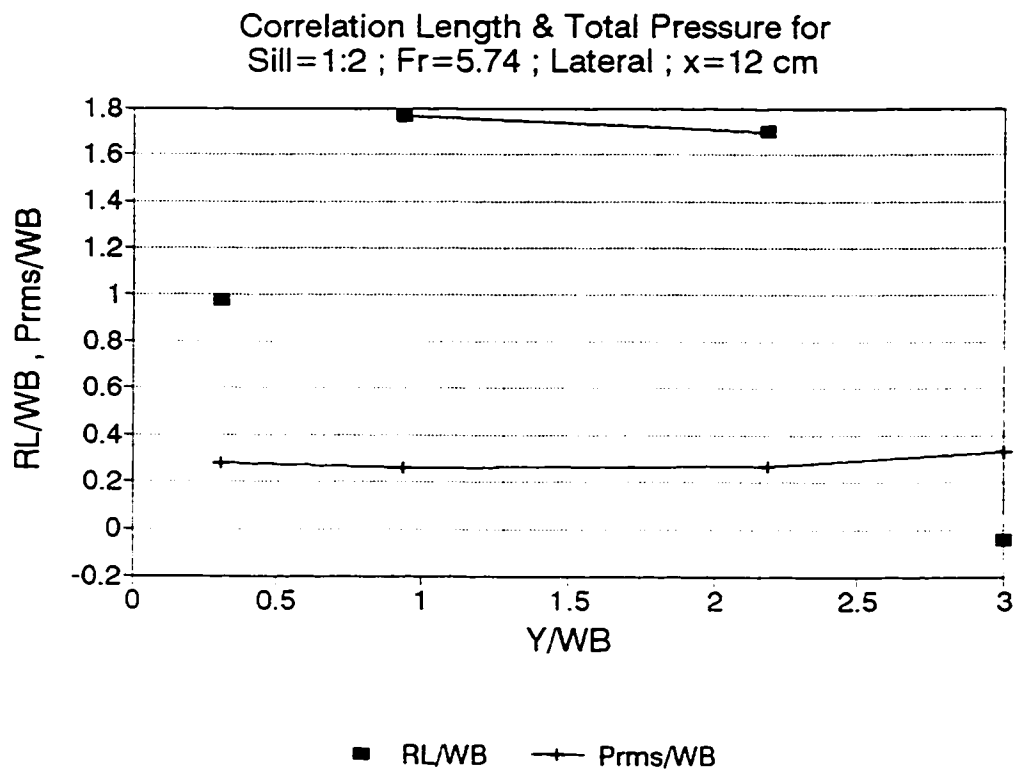


Fig. 5.139

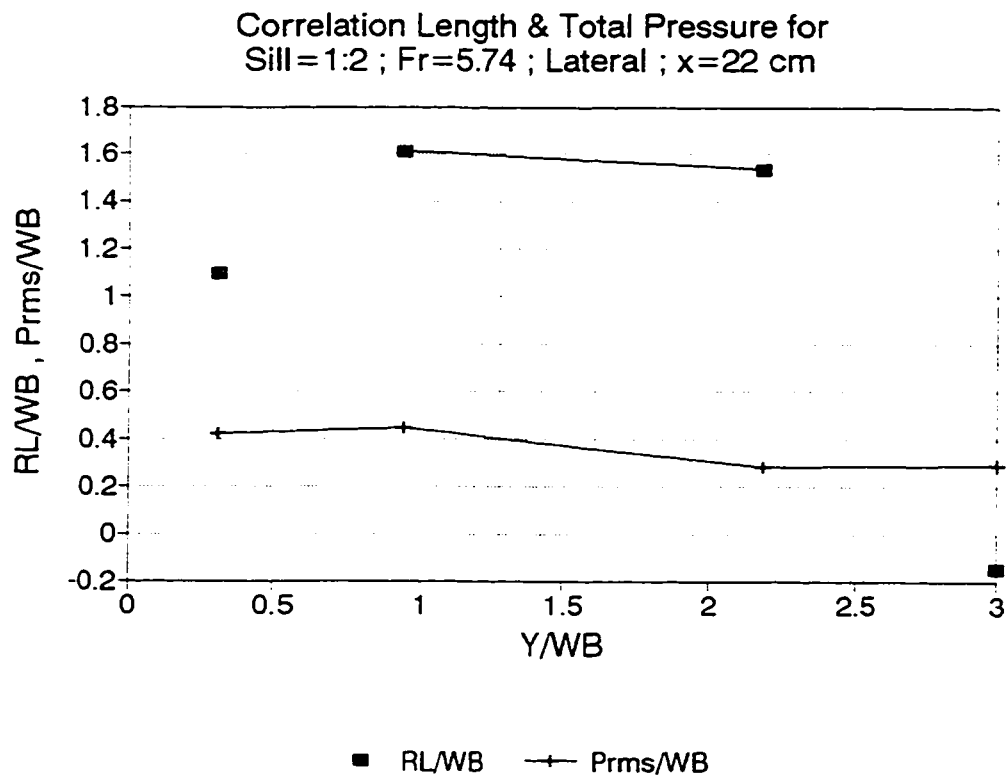


Fig. 5.140

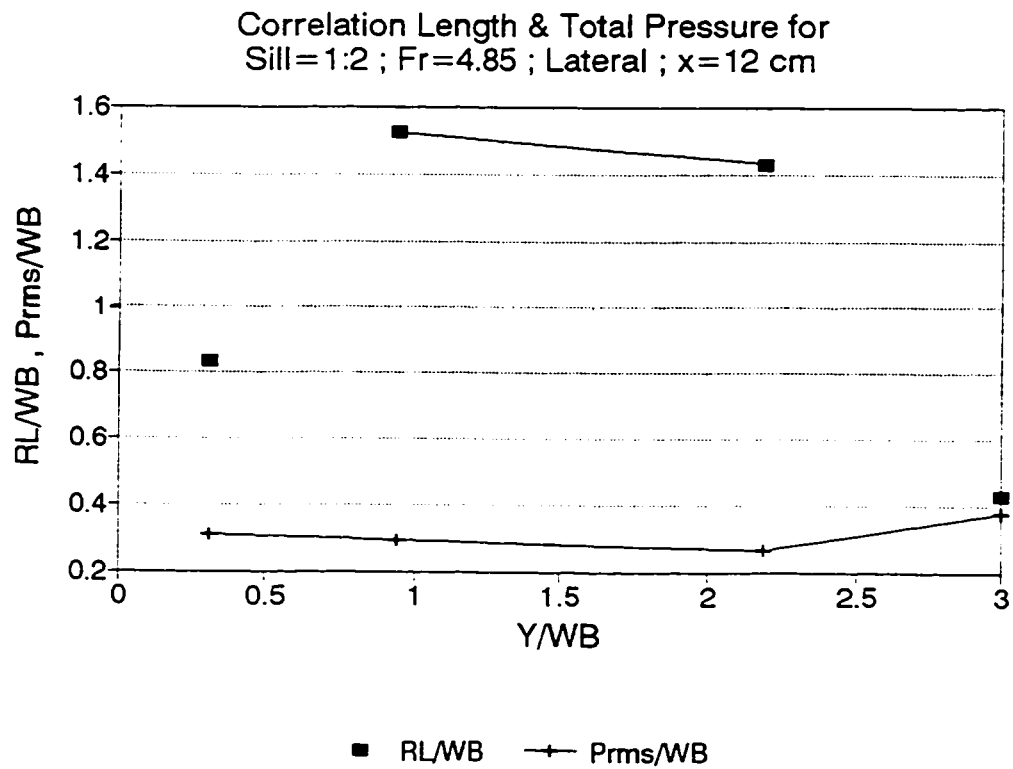


Fig. 5.141

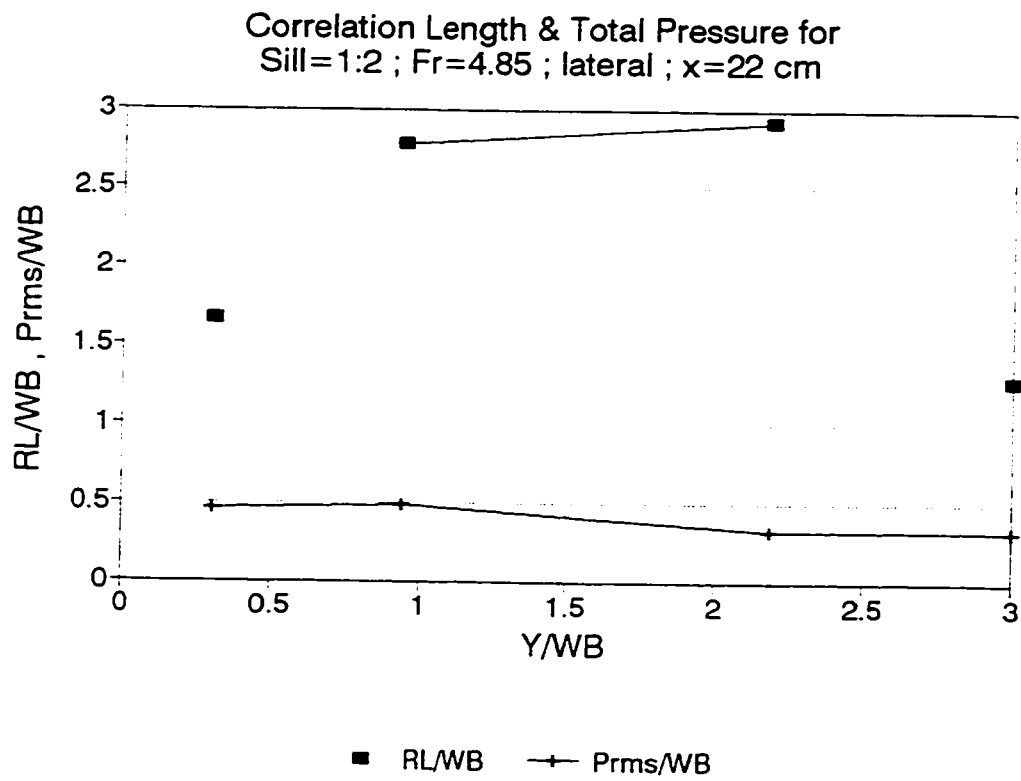


Fig. 5.142

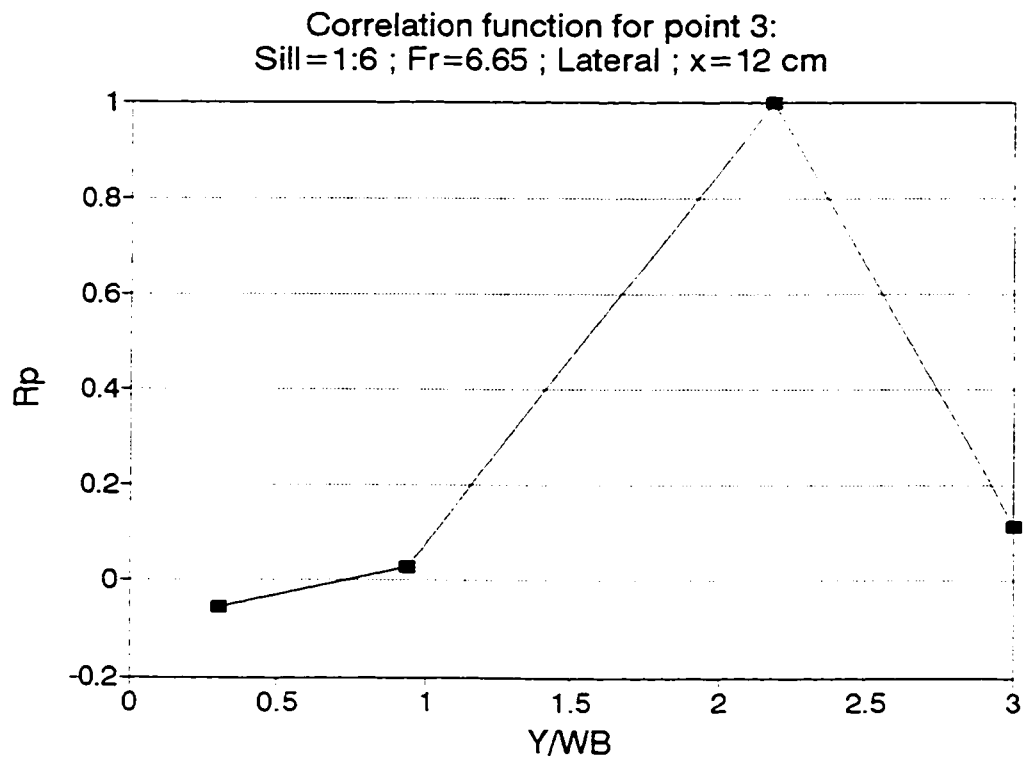


Fig. 5.143

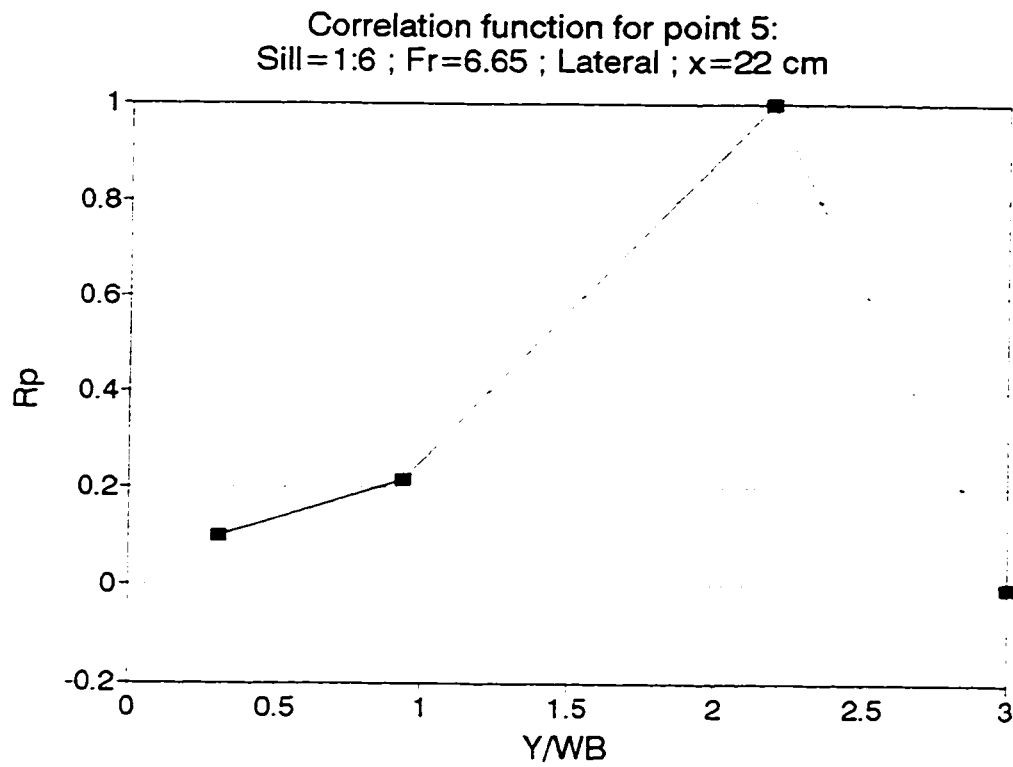


Fig. 5.144

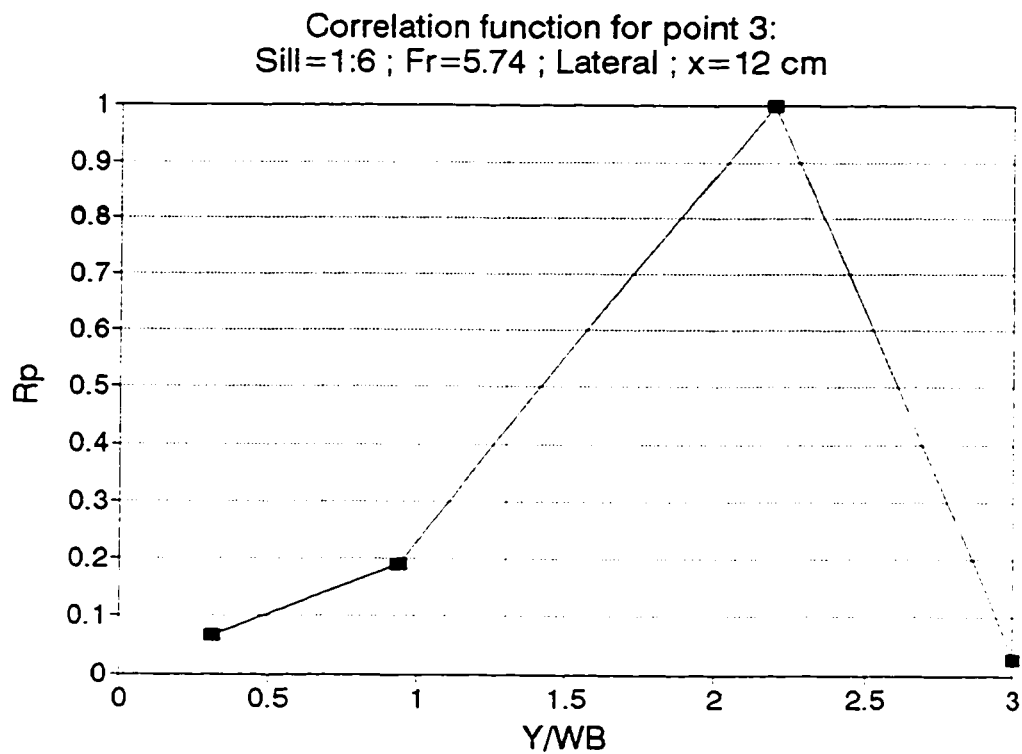


Fig. 5.145

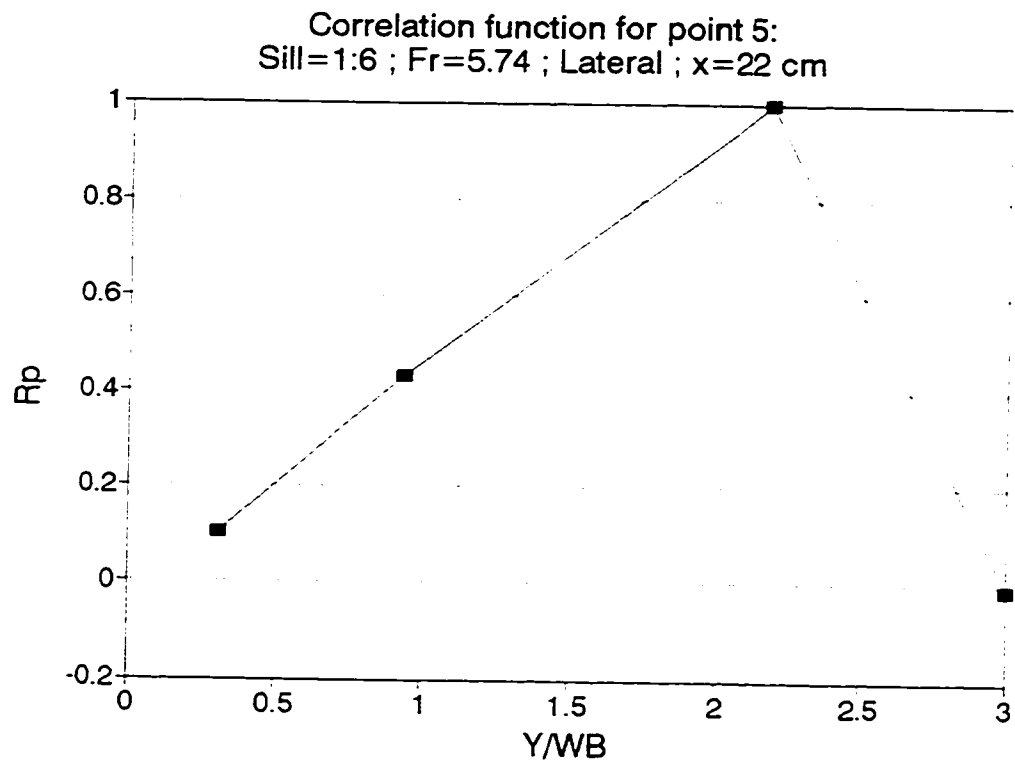


Fig. 5.146

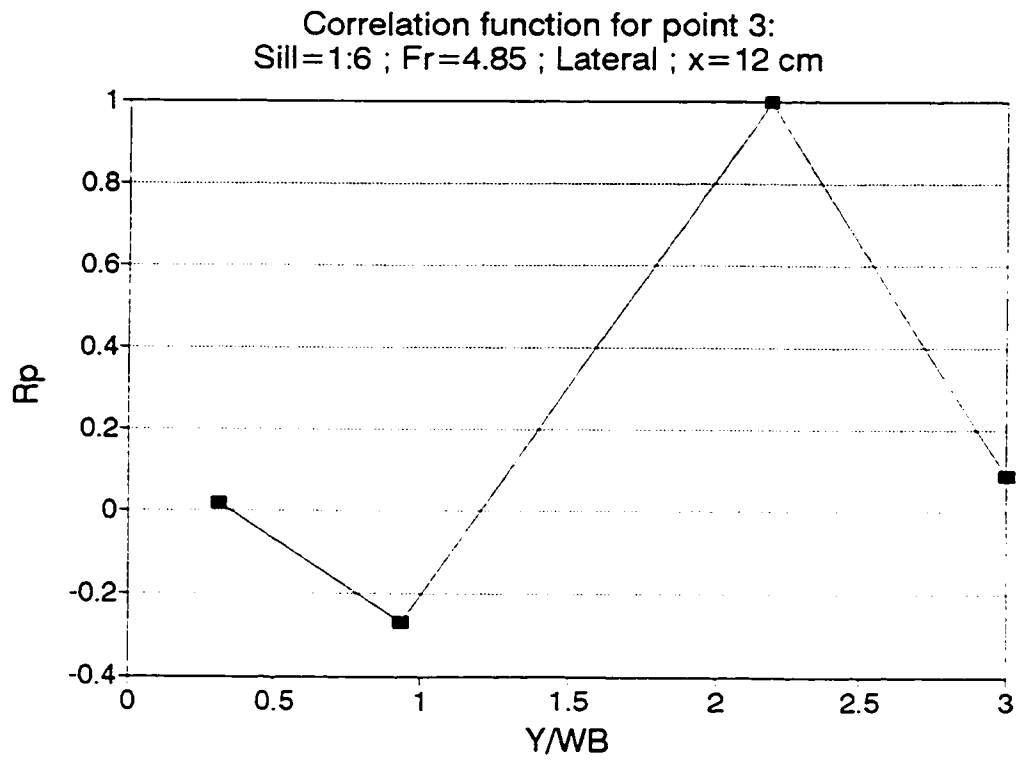


Fig. 5.147

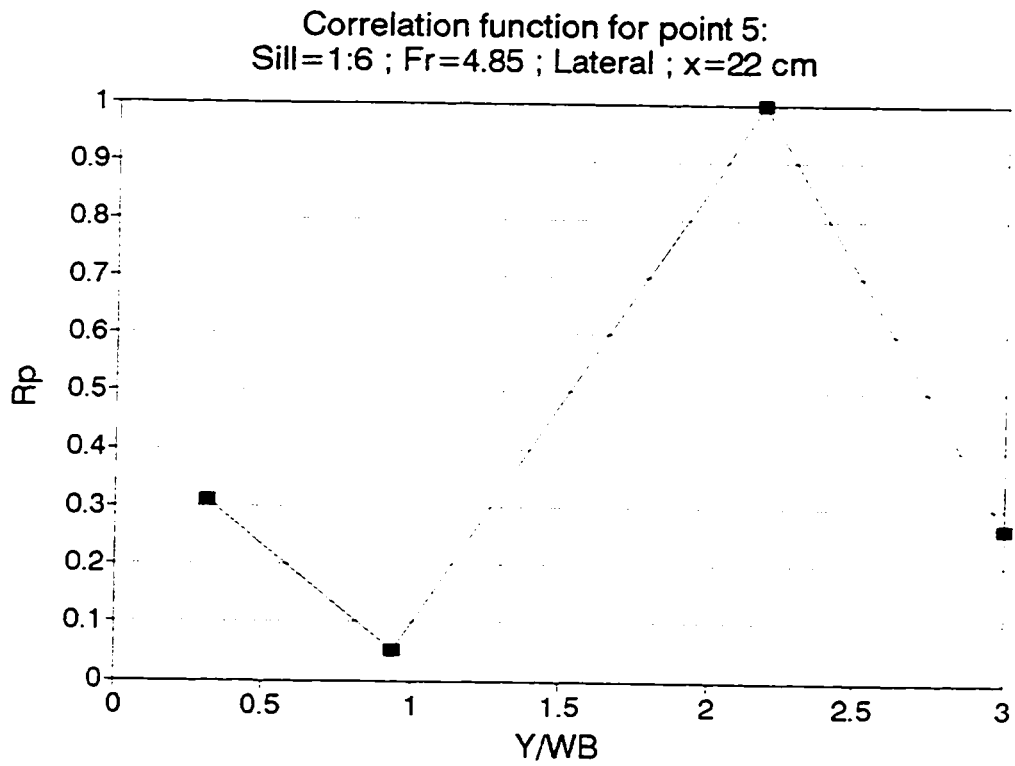


Fig. 5.148

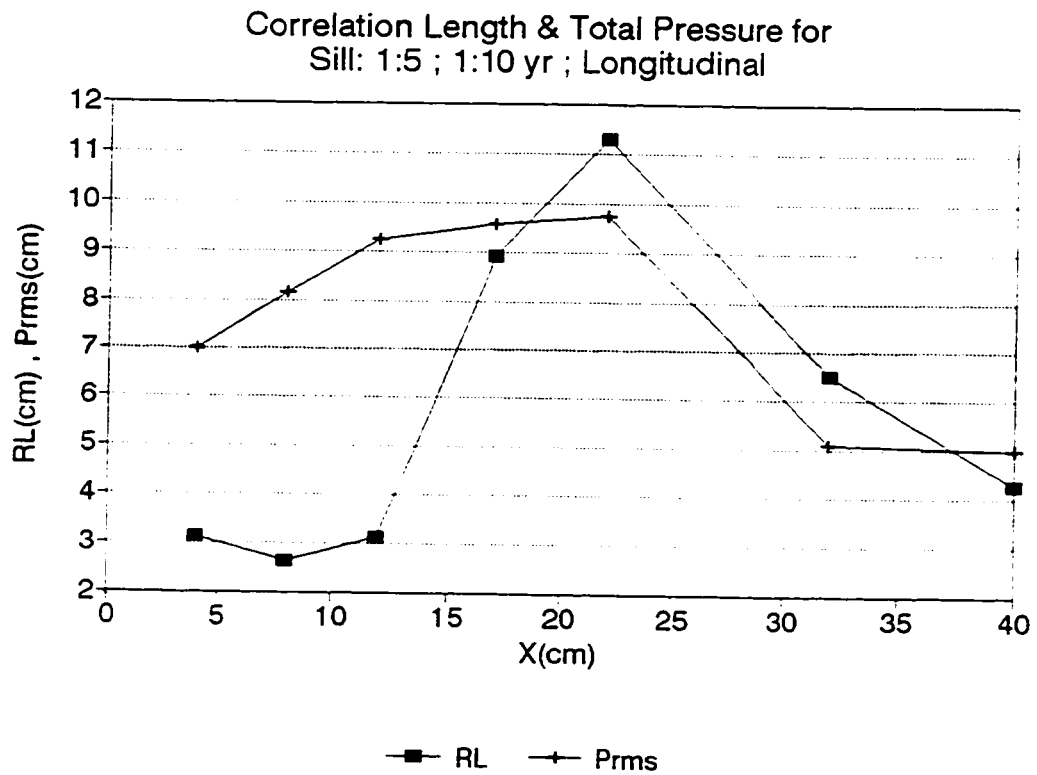


Fig. 5.149

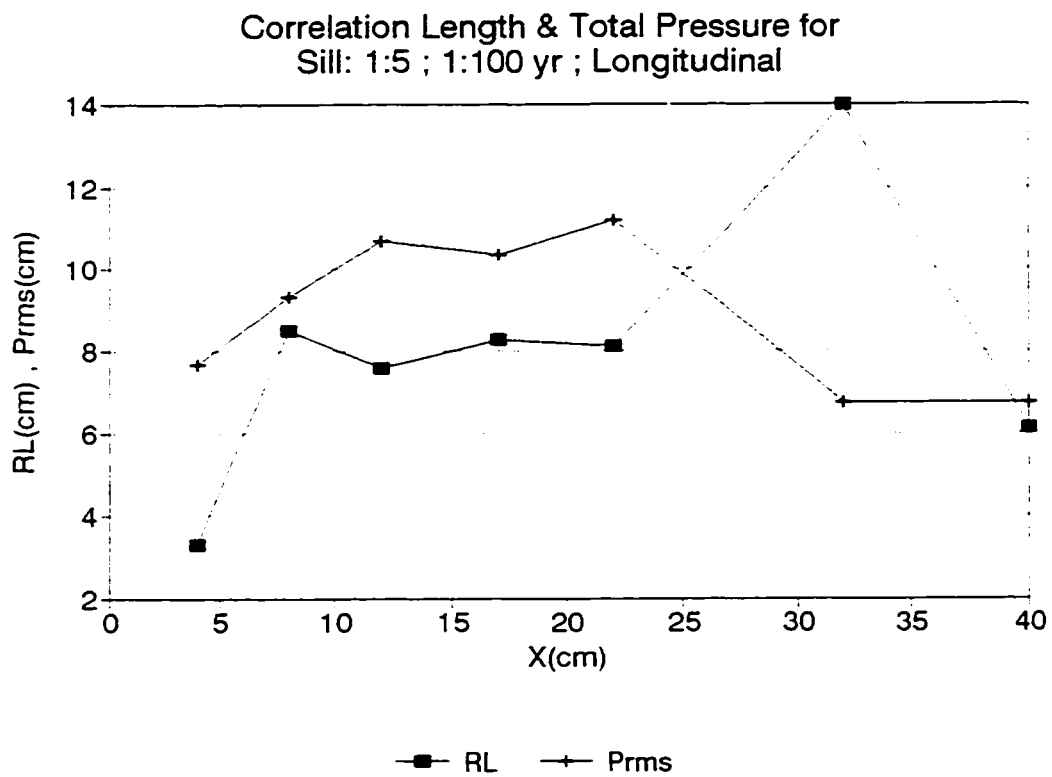


Fig. 5.150

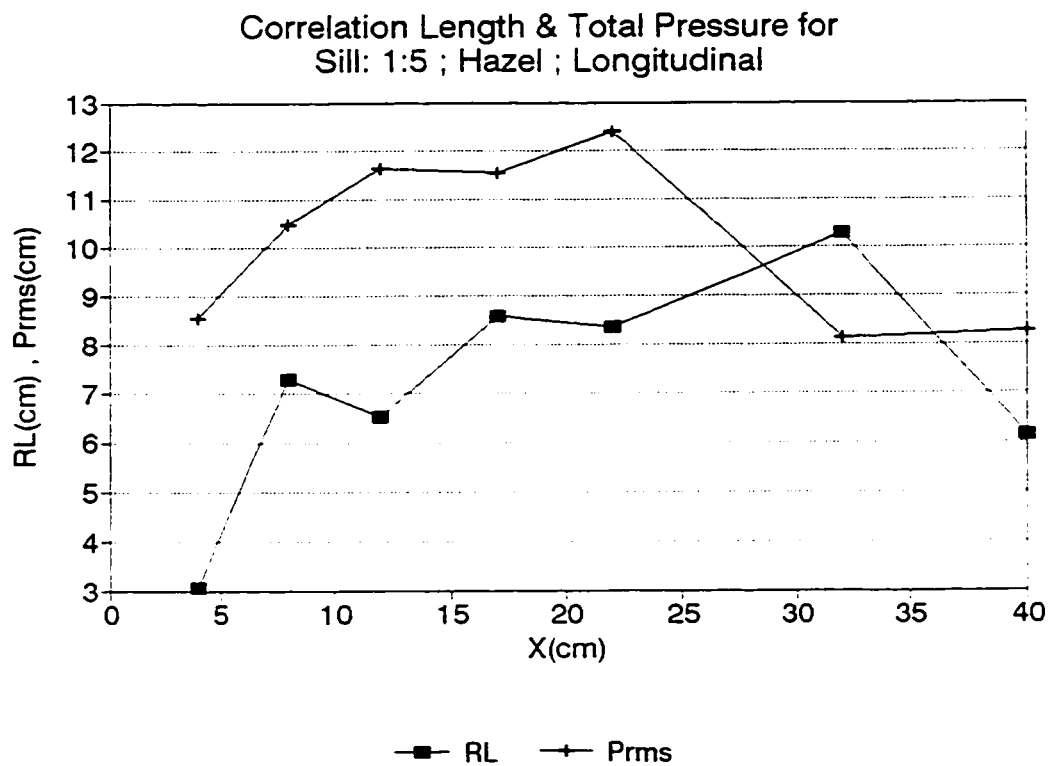


Fig. 5.151

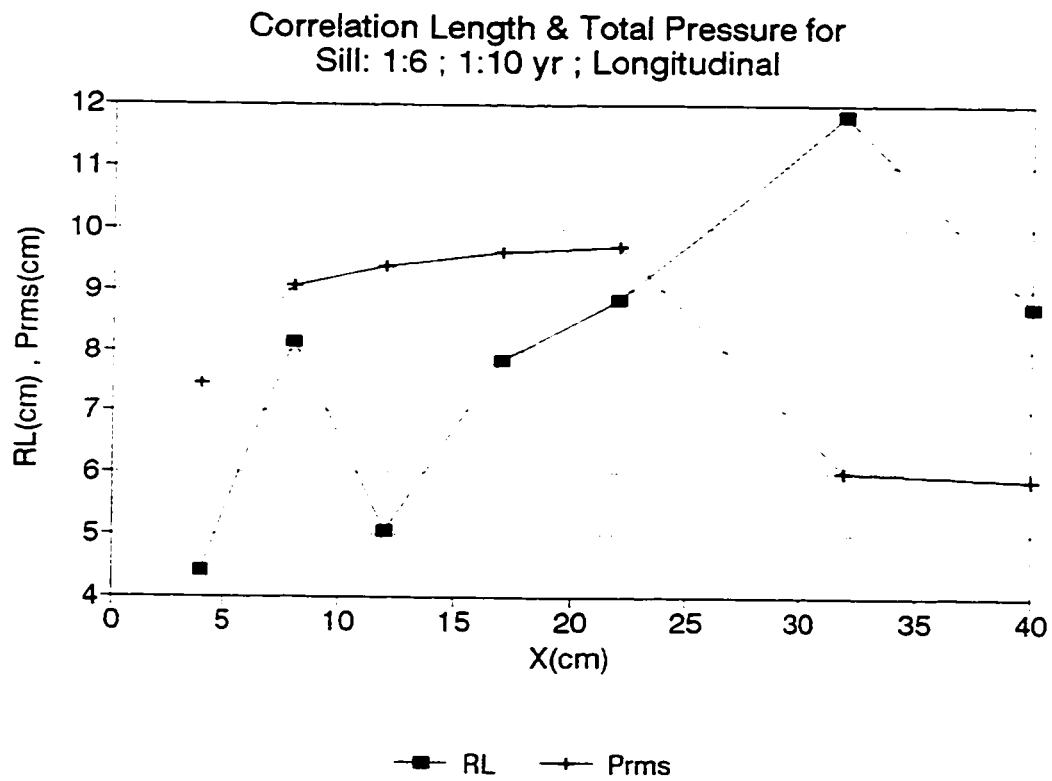


Fig. 5.152

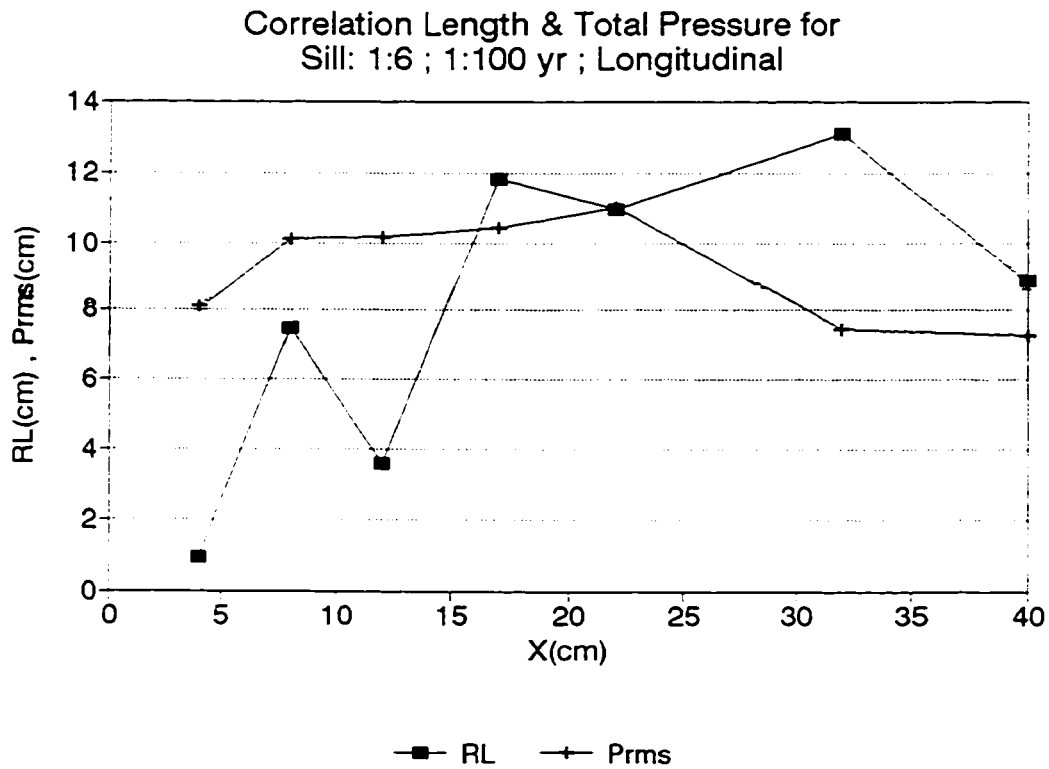


Fig. 5.153

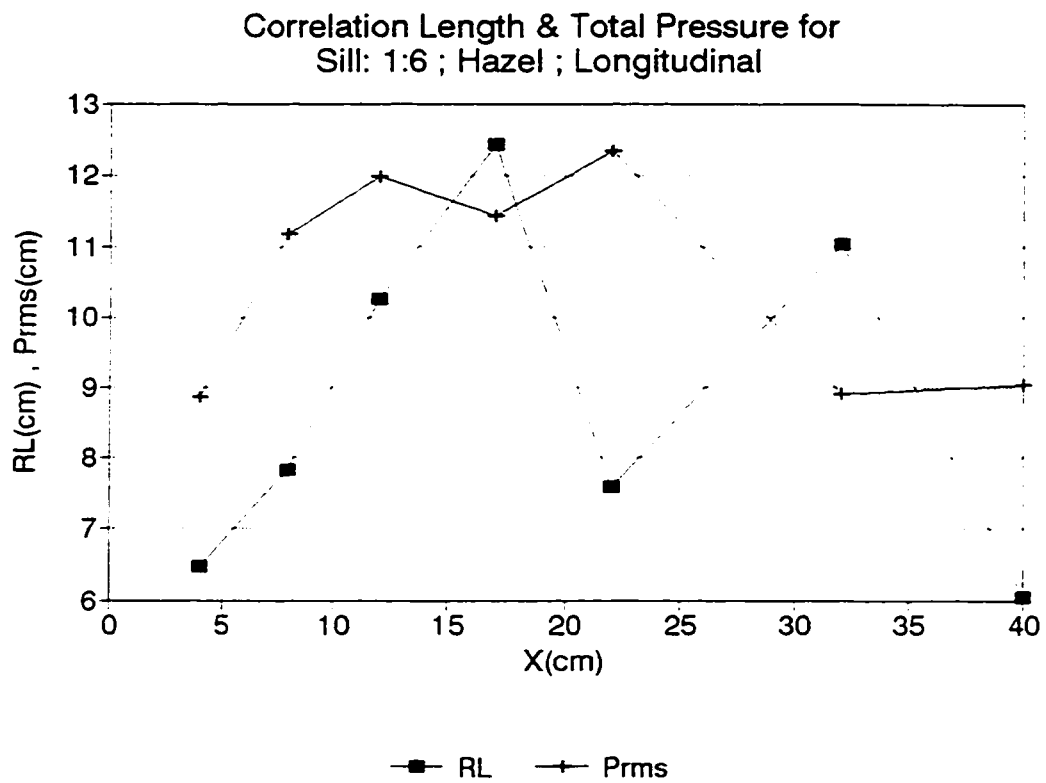


Fig. 5.154

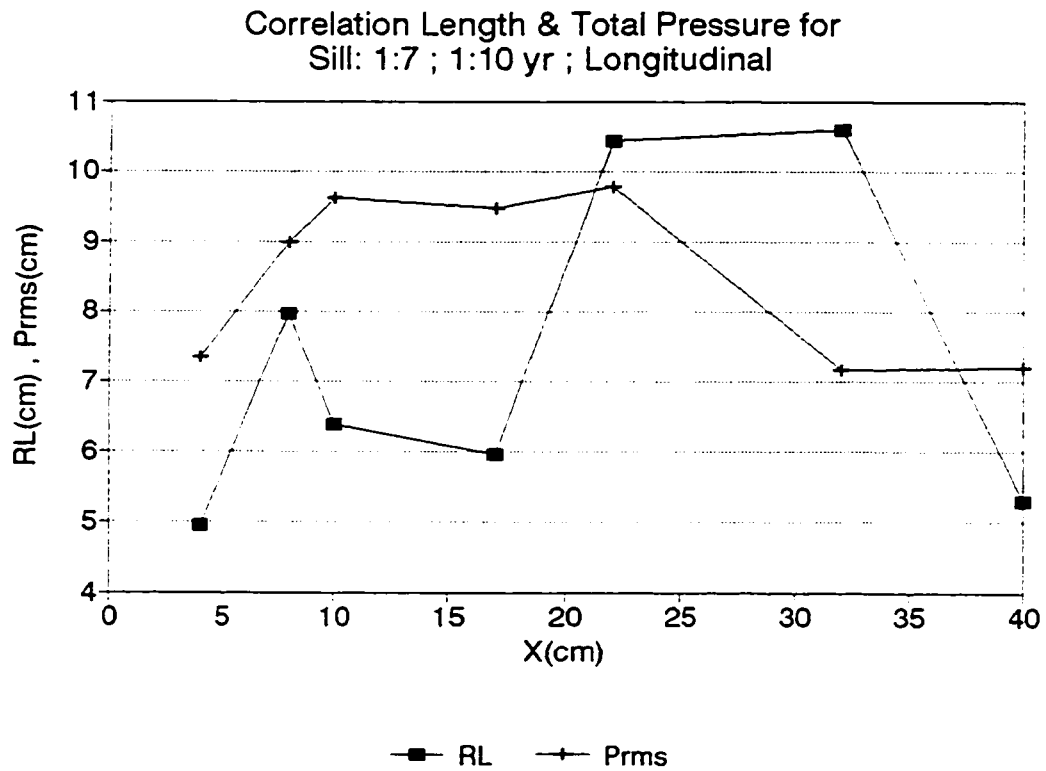


Fig. 5.155

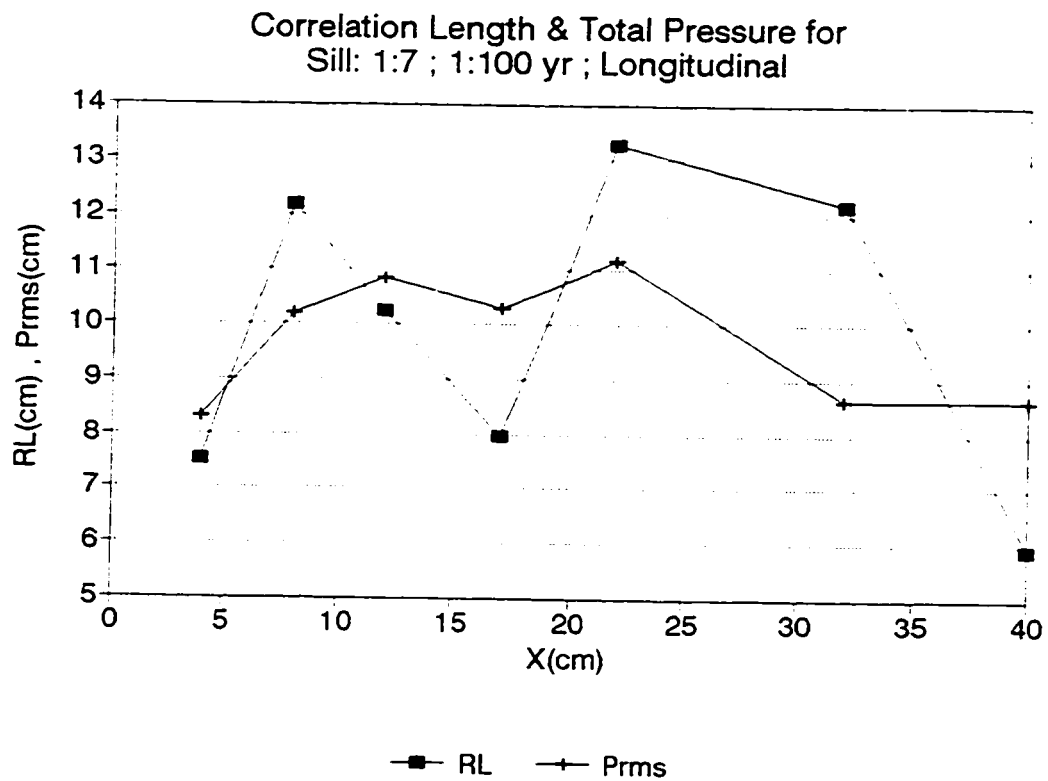


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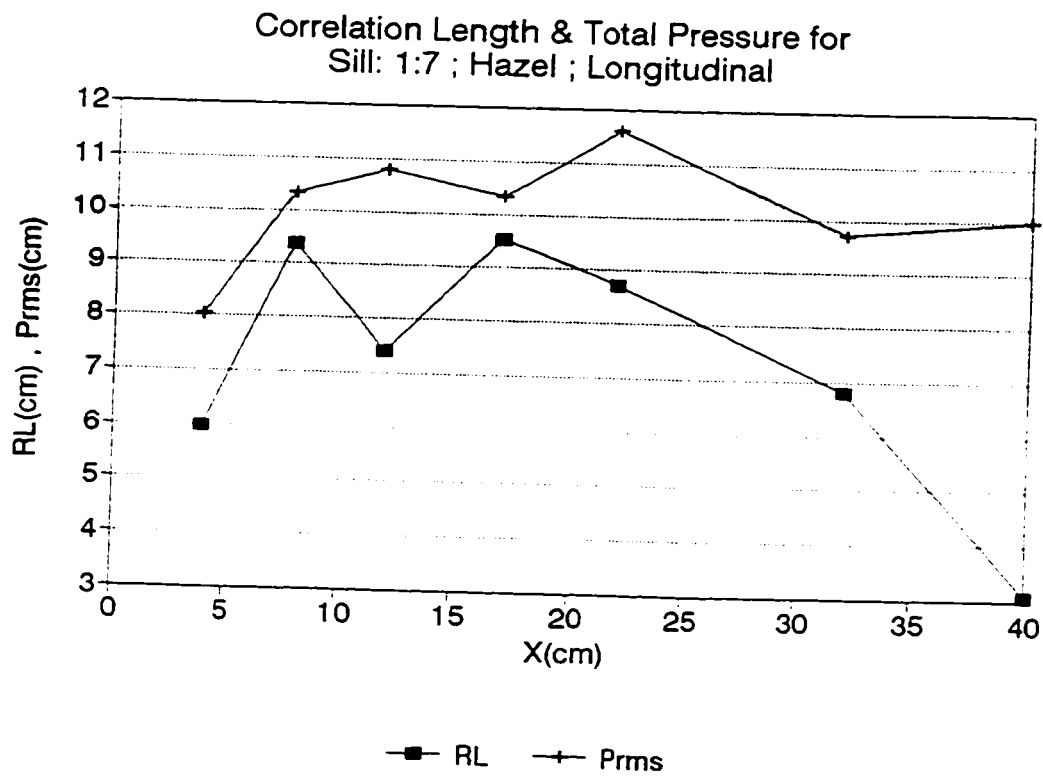


Fig. 5.157

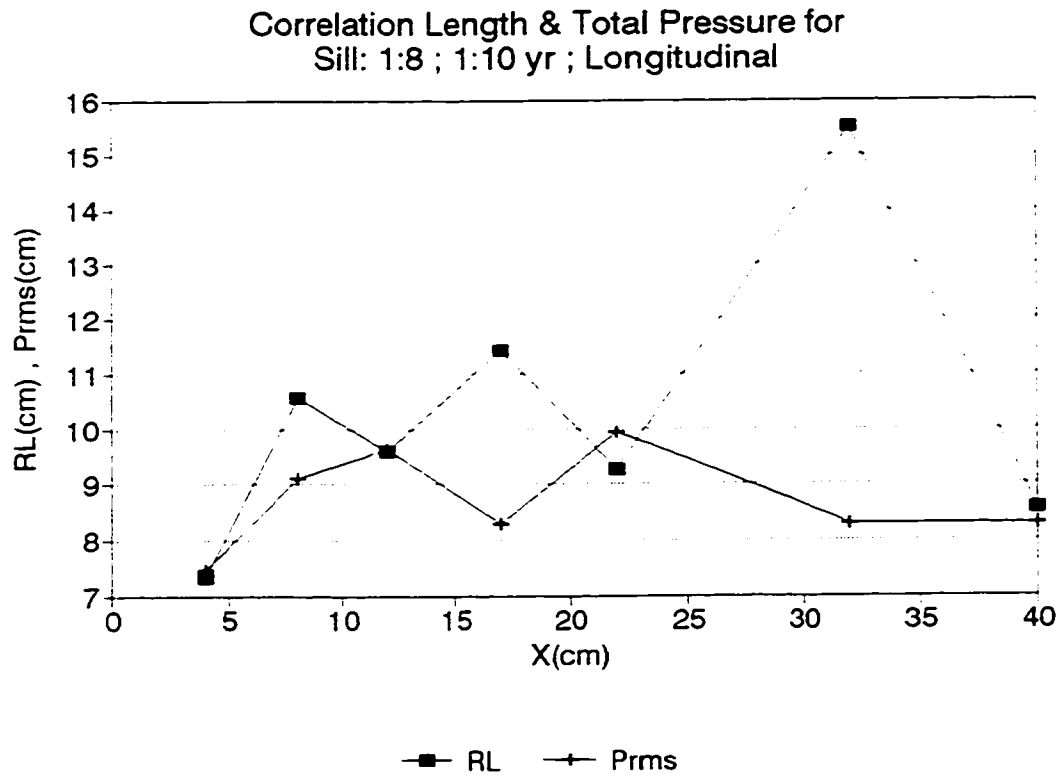


Fig. 5.158

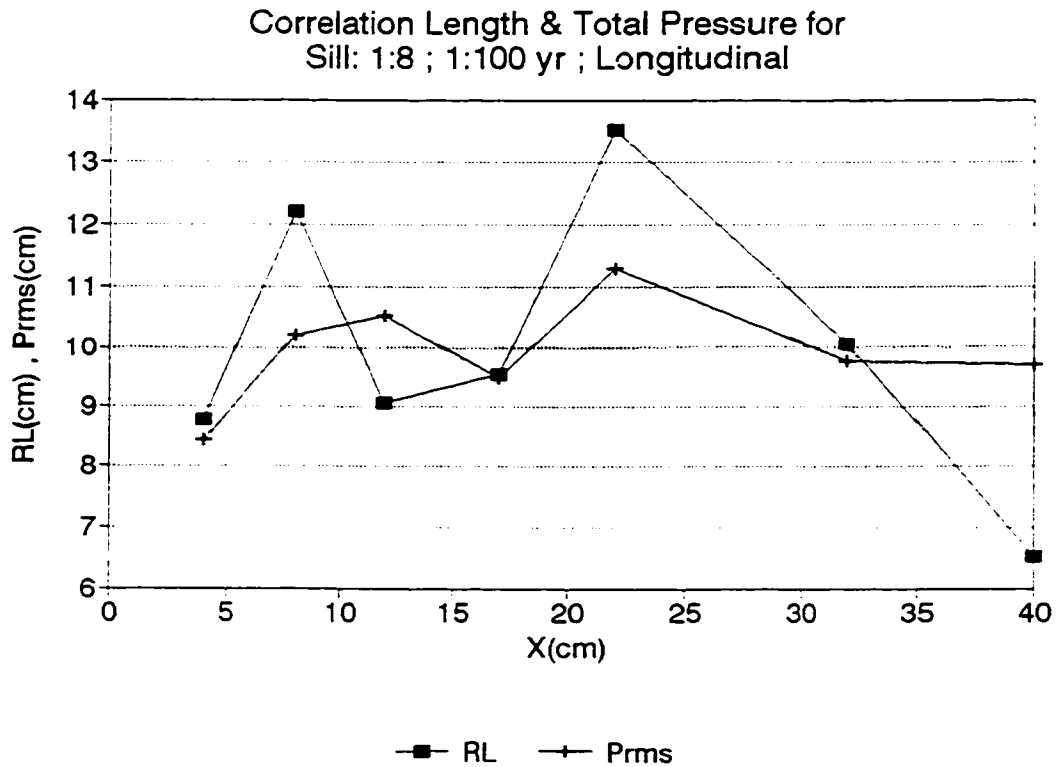


Fig. 5.159

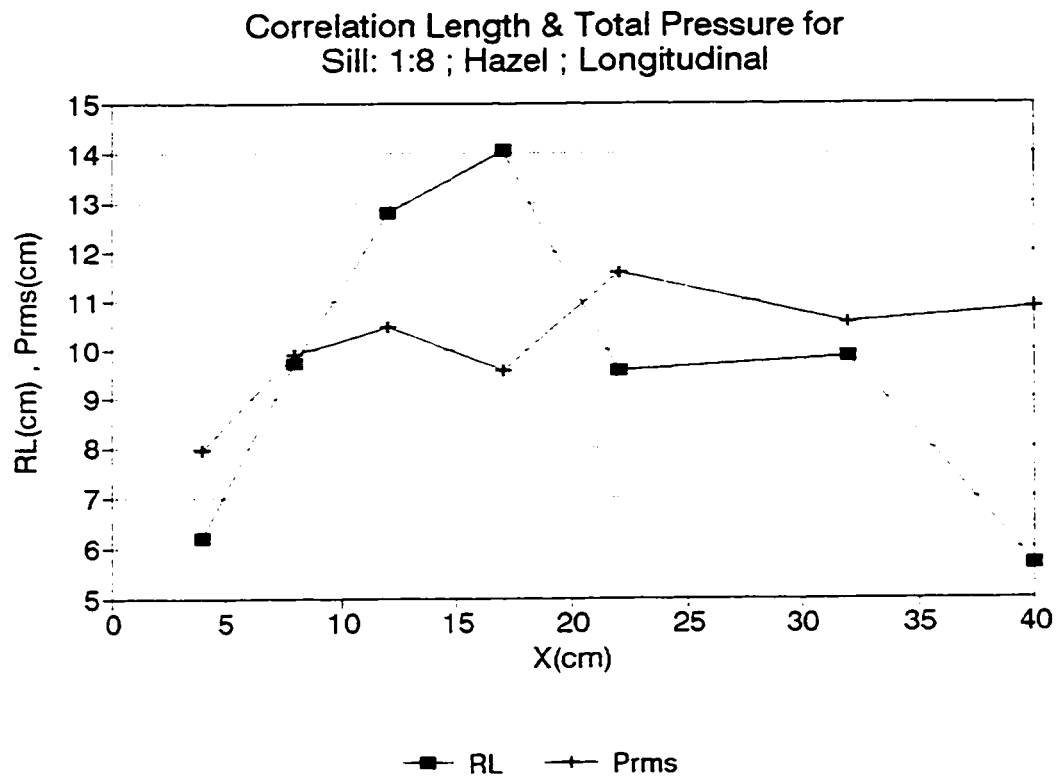


Fig. 5.160

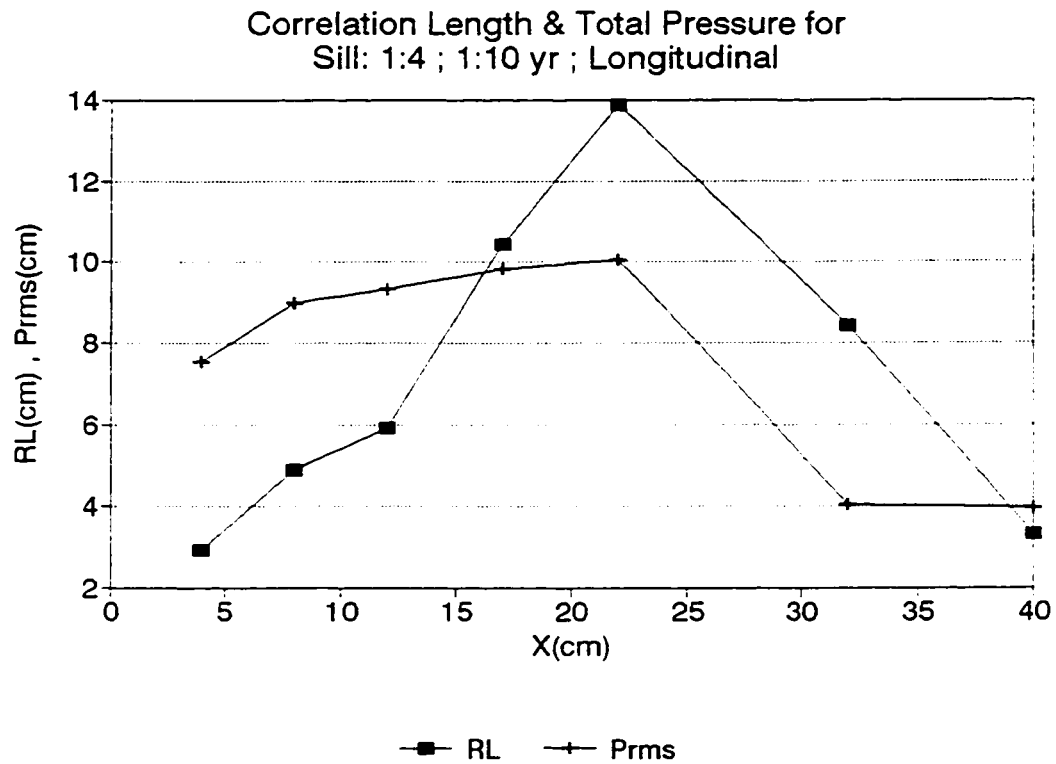


Fig. 5.161

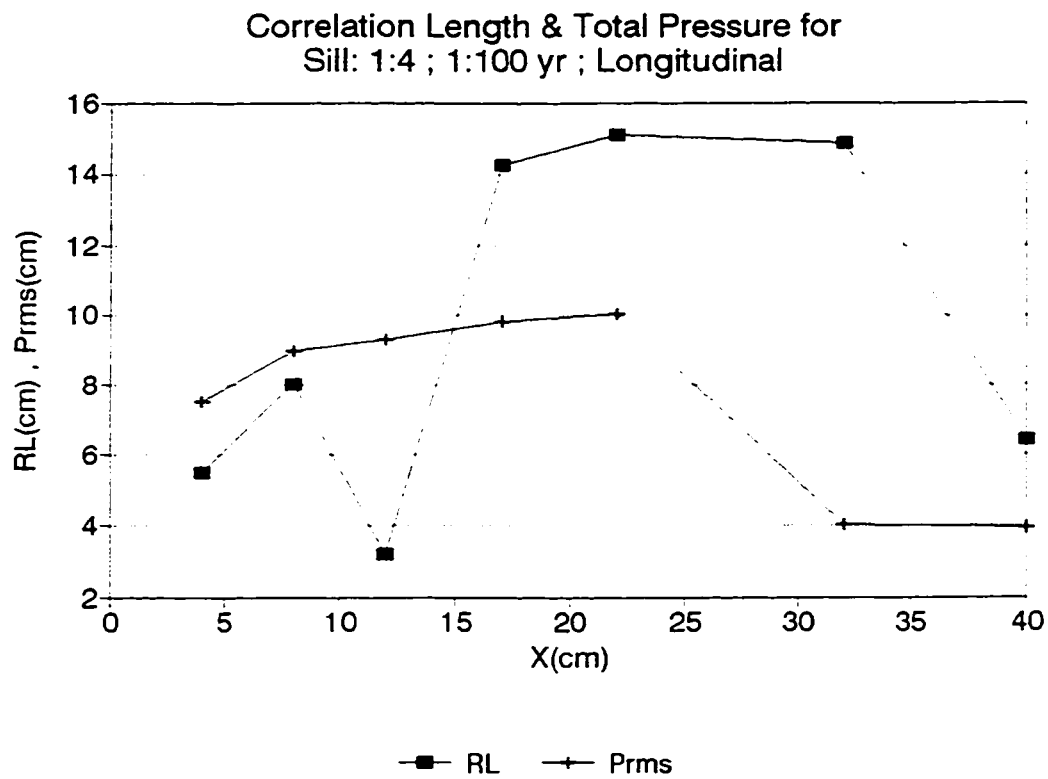


Fig. 5.162

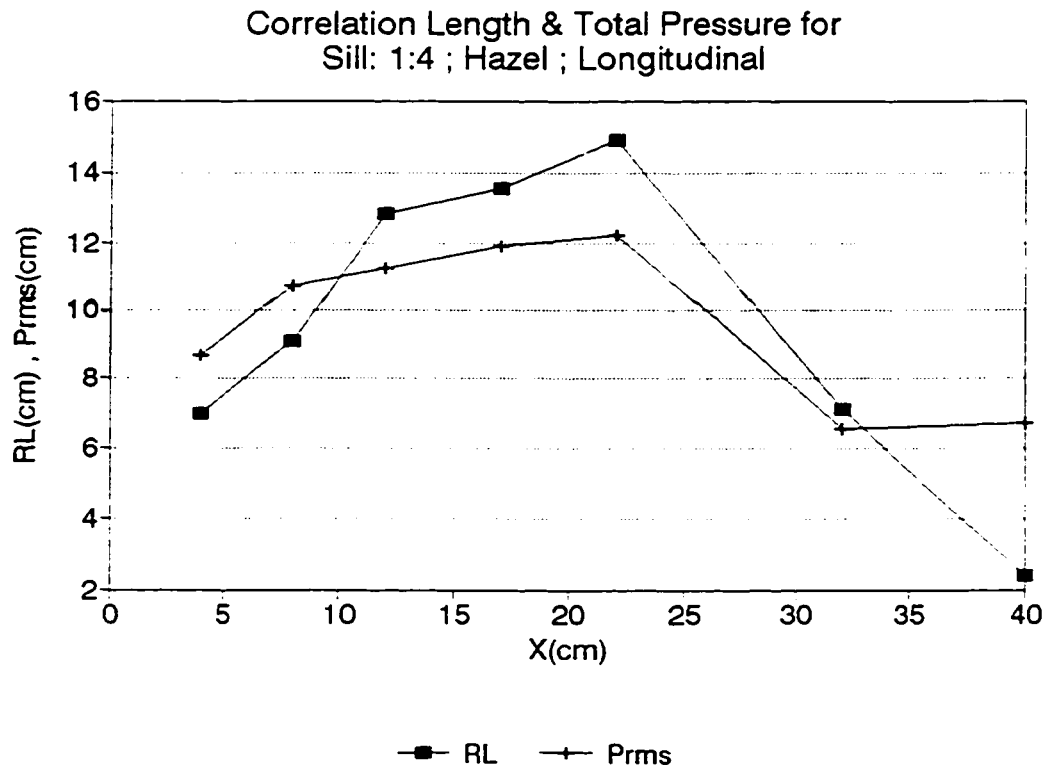


Fig. 5.163

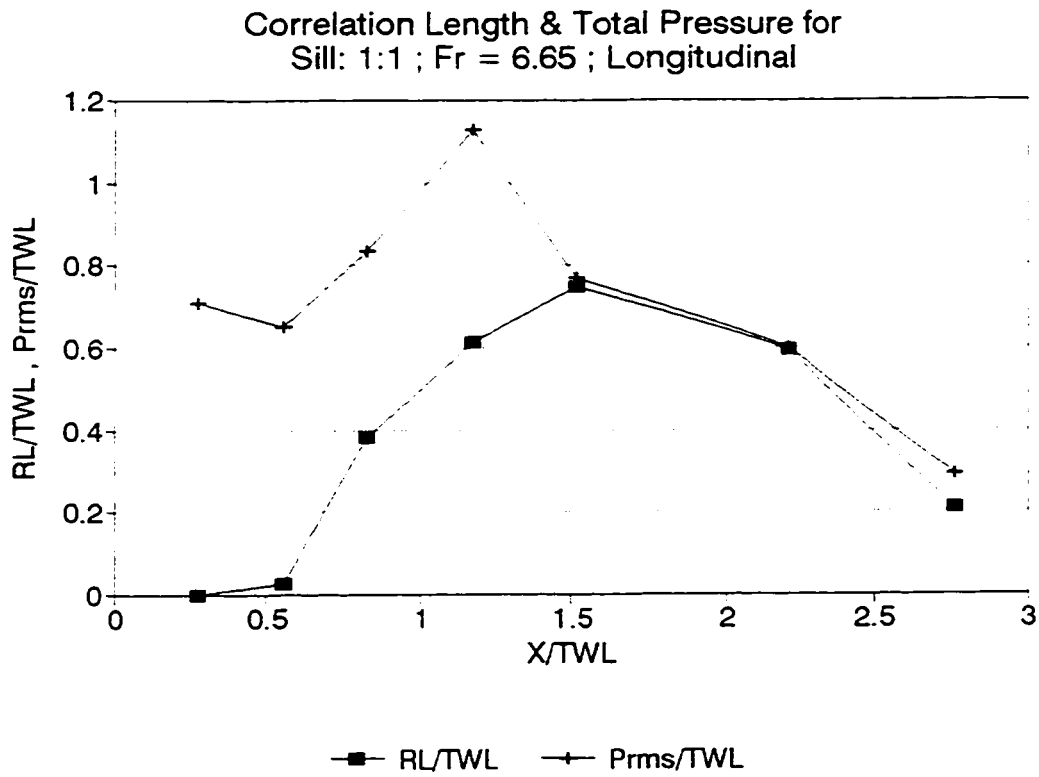


Fig. 5.164

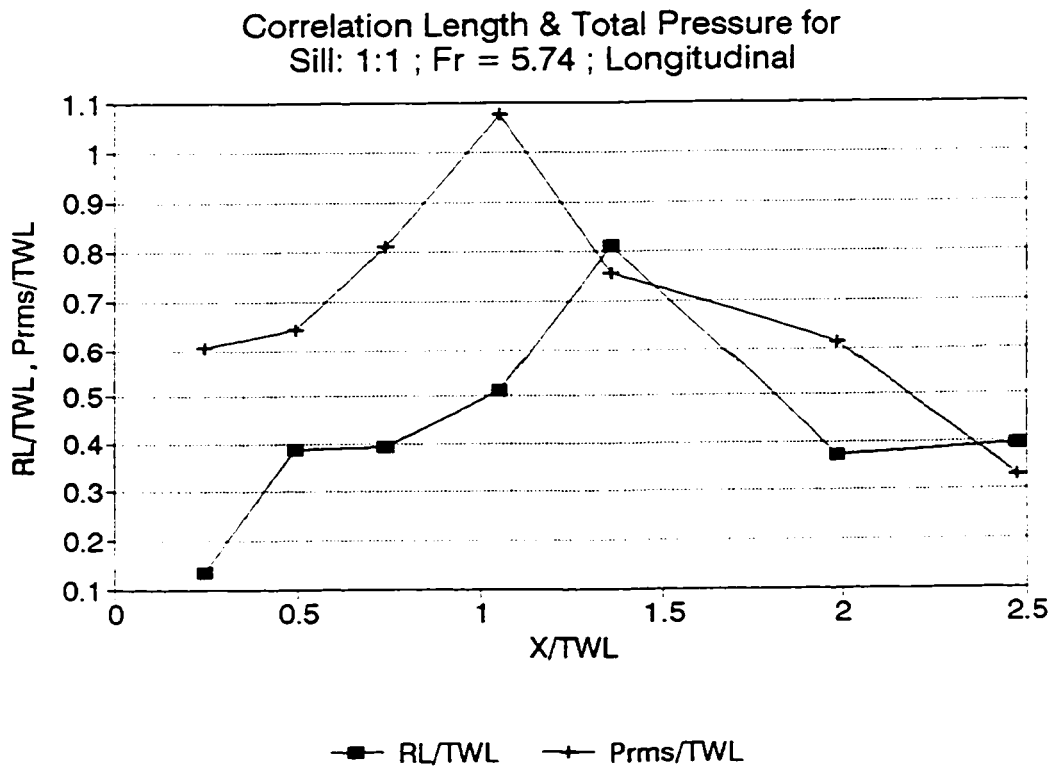


Fig. 5.165

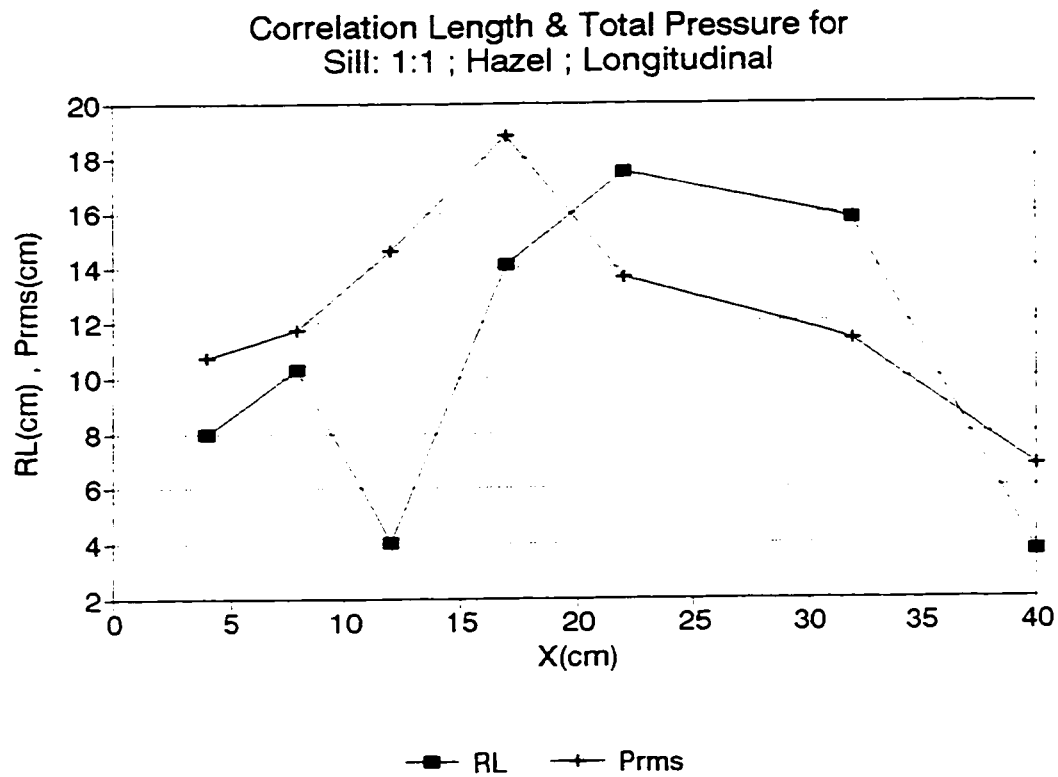


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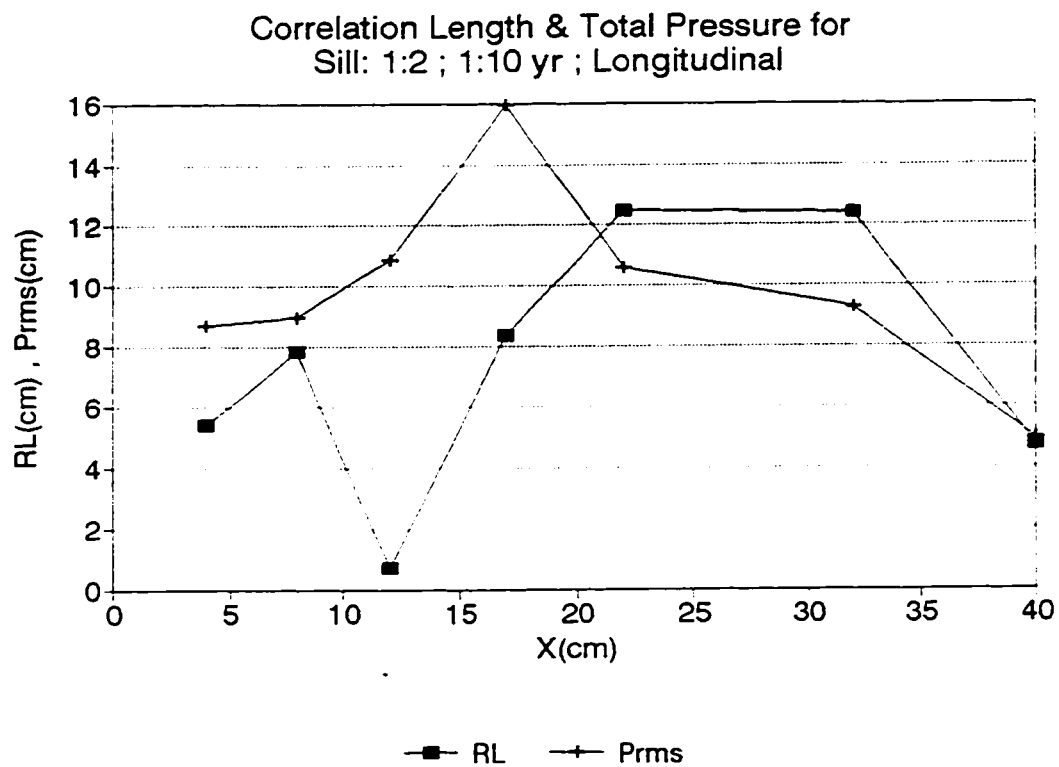


Fig. 5.167

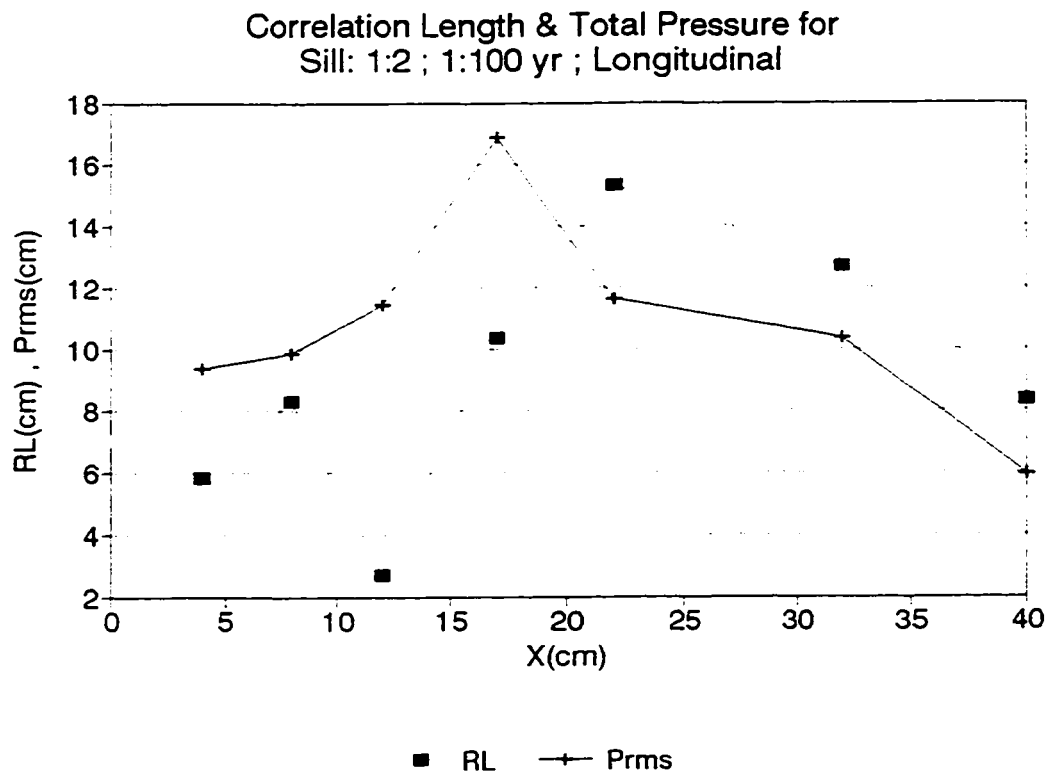


Fig. 5.168

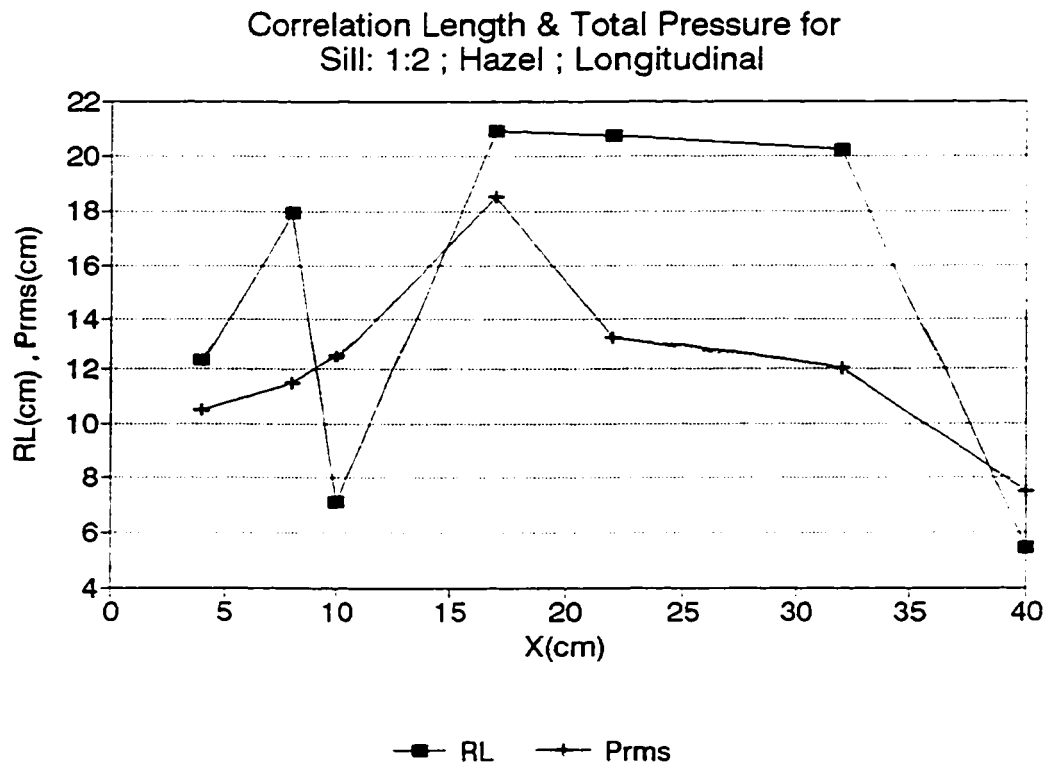


Fig. 5.169

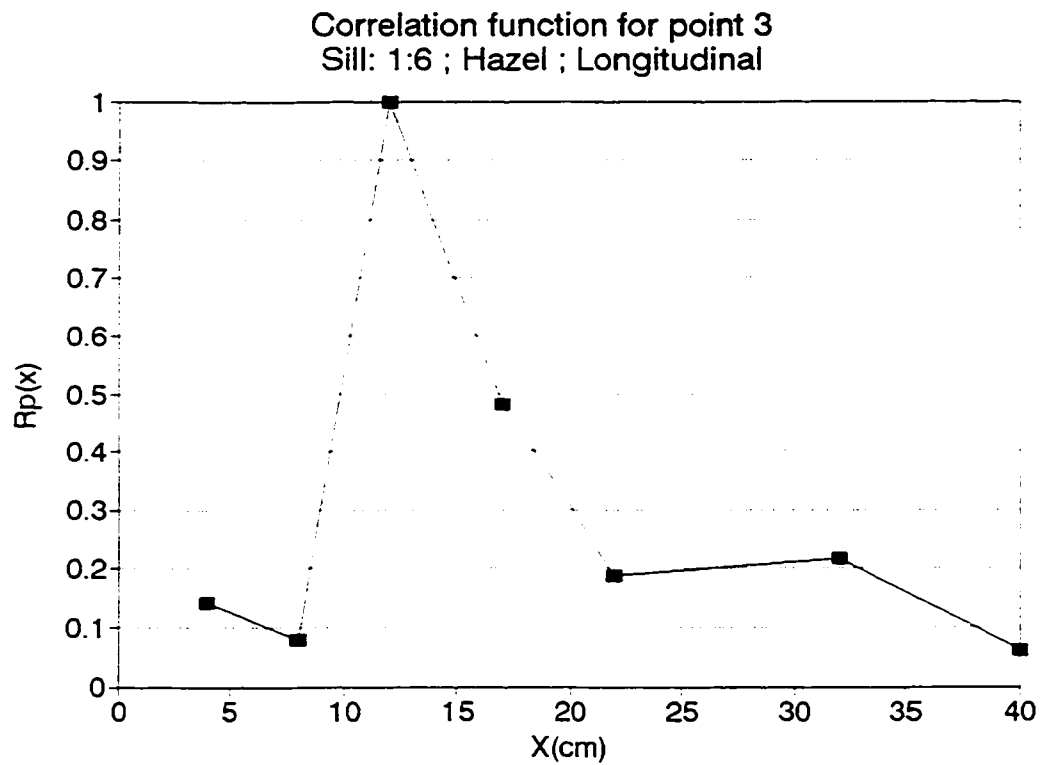


Fig. 5.170

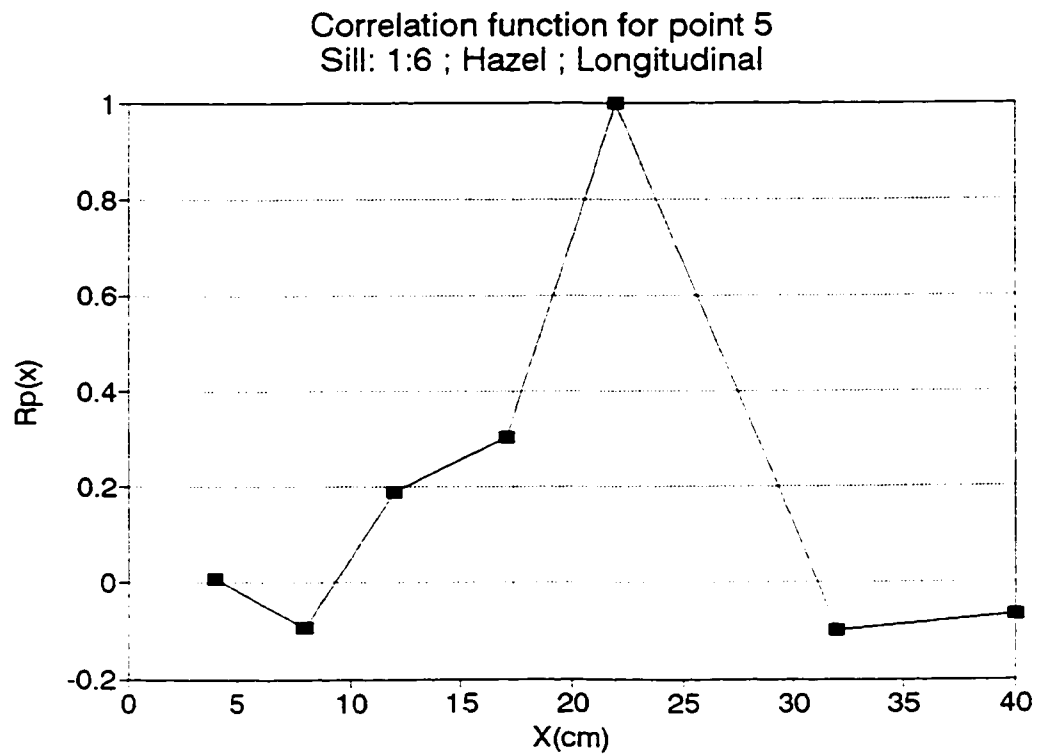


Fig. 5.171

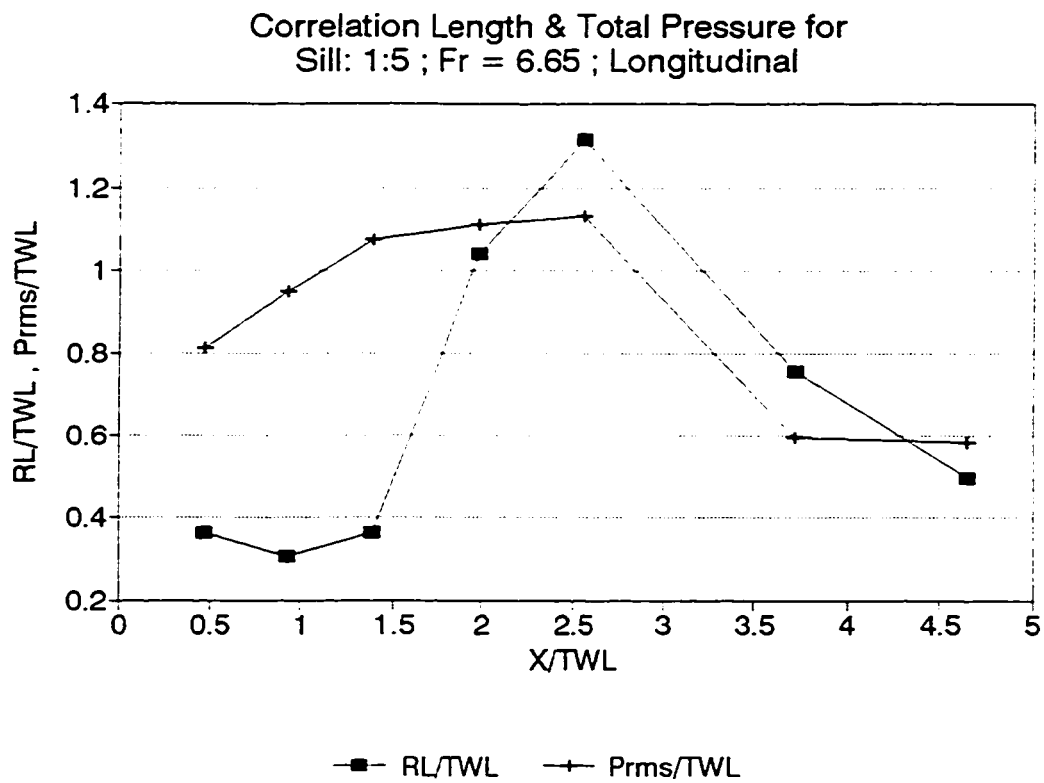


Fig. 5.172

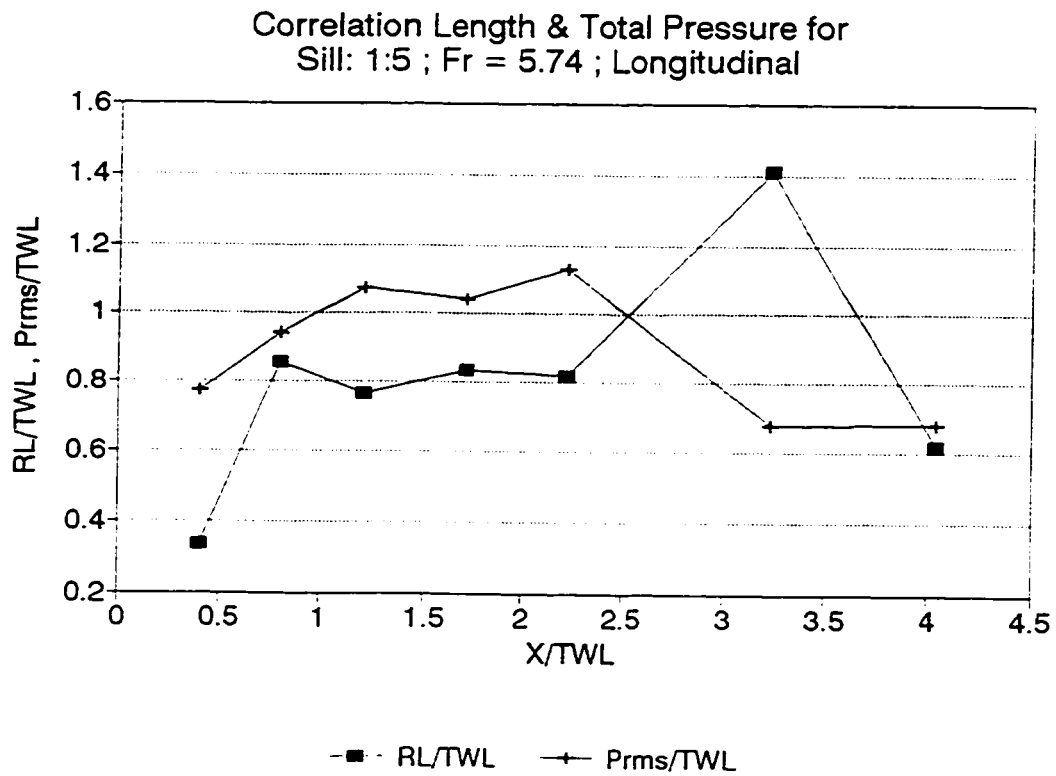


Fig. 5.175

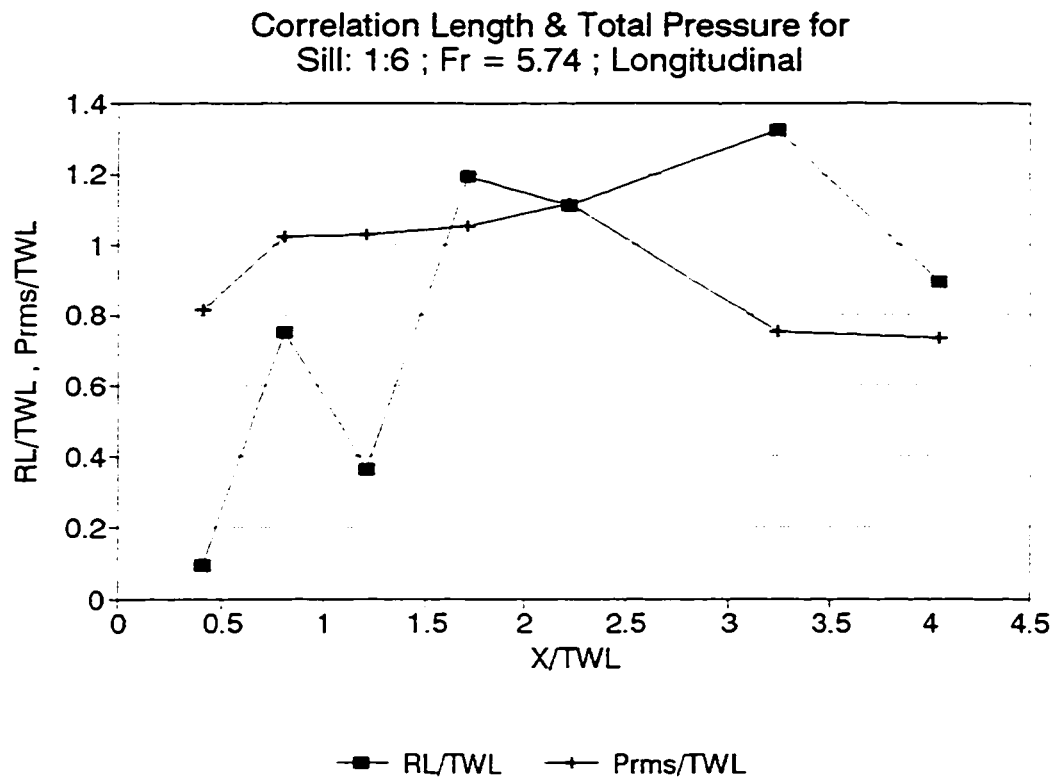


Fig. 5.176

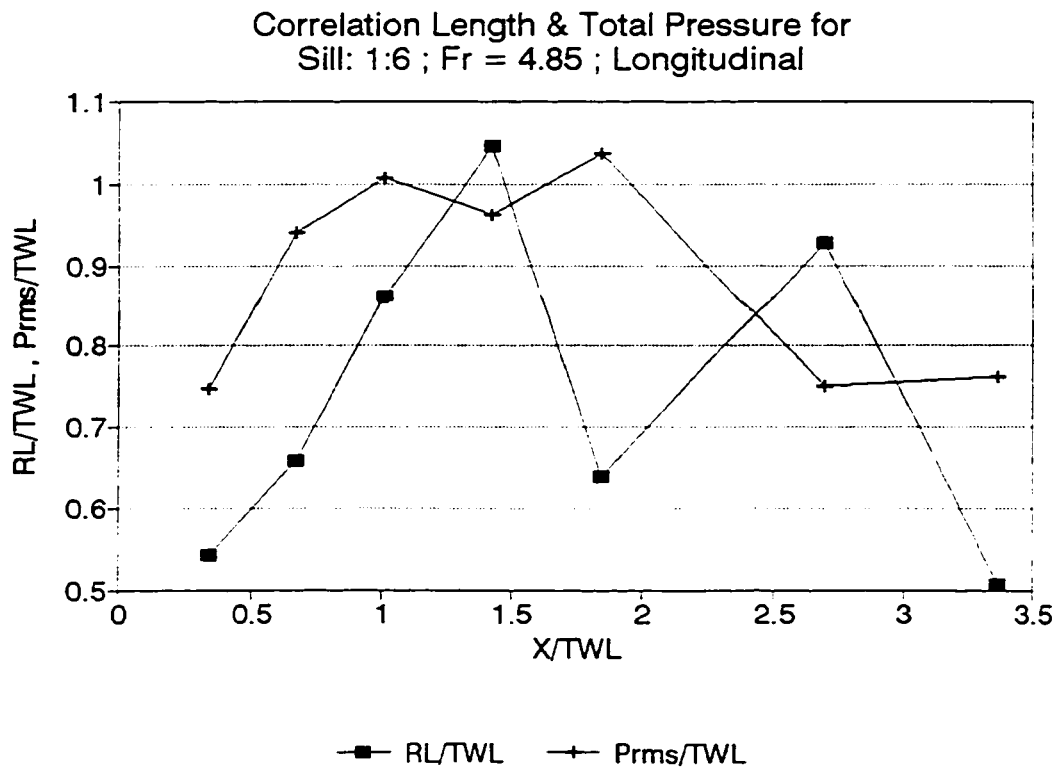


Fig. 5.173

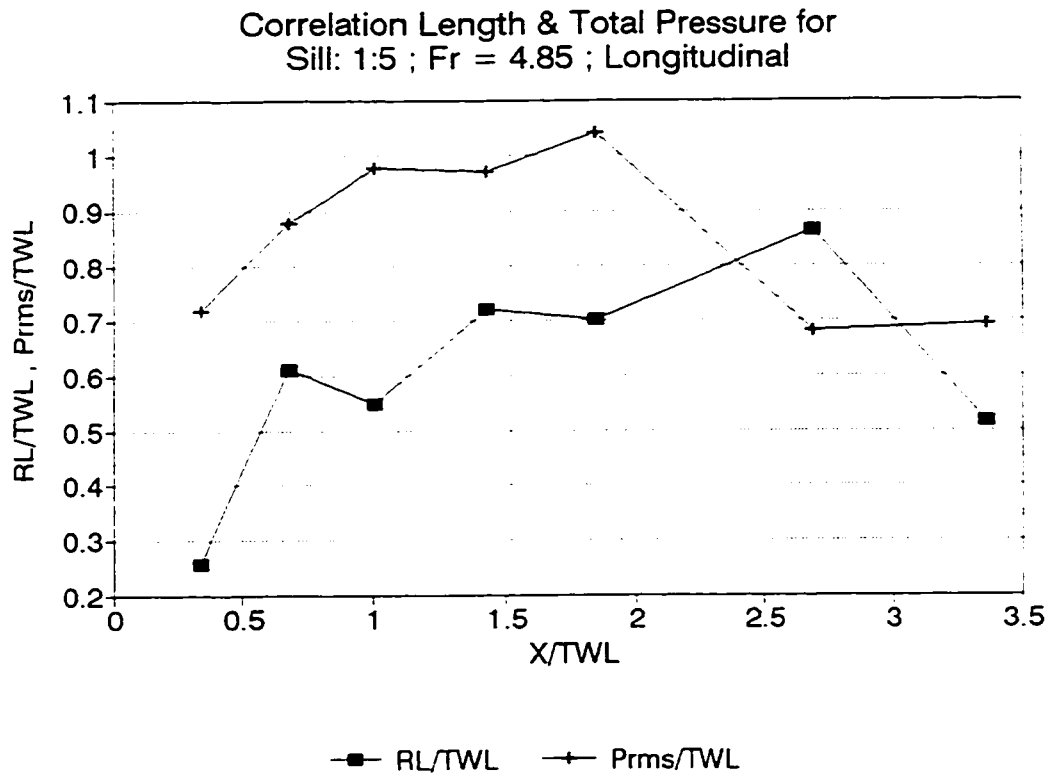


Fig. 5.174

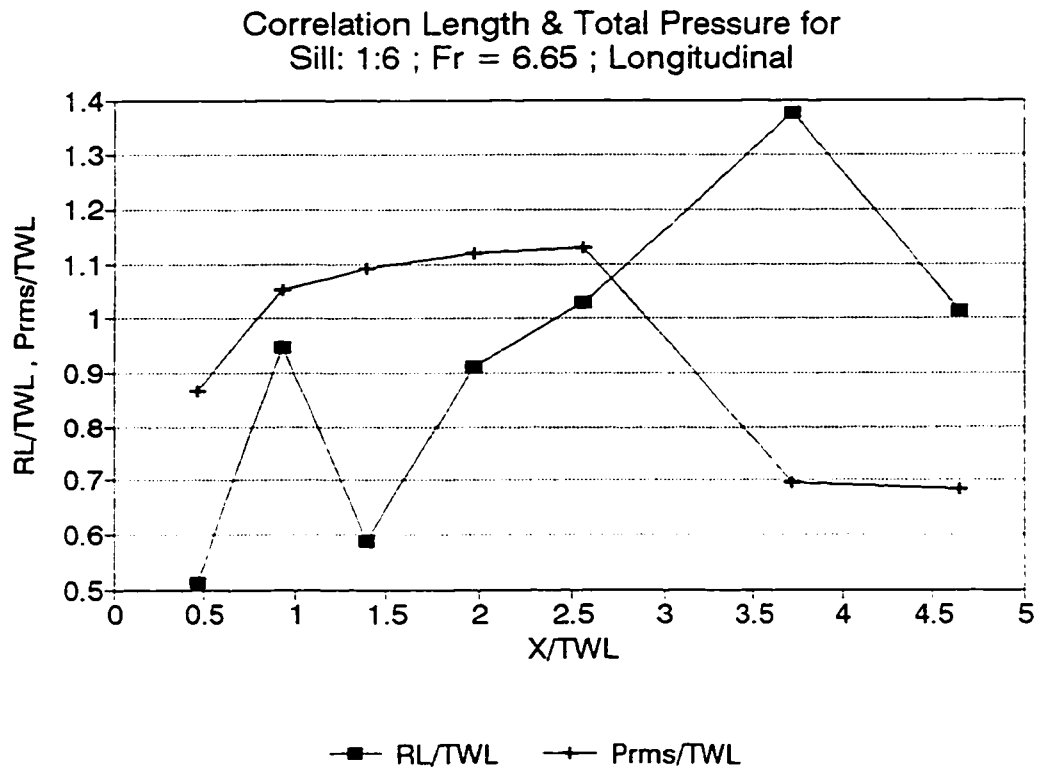


Fig. 5.177

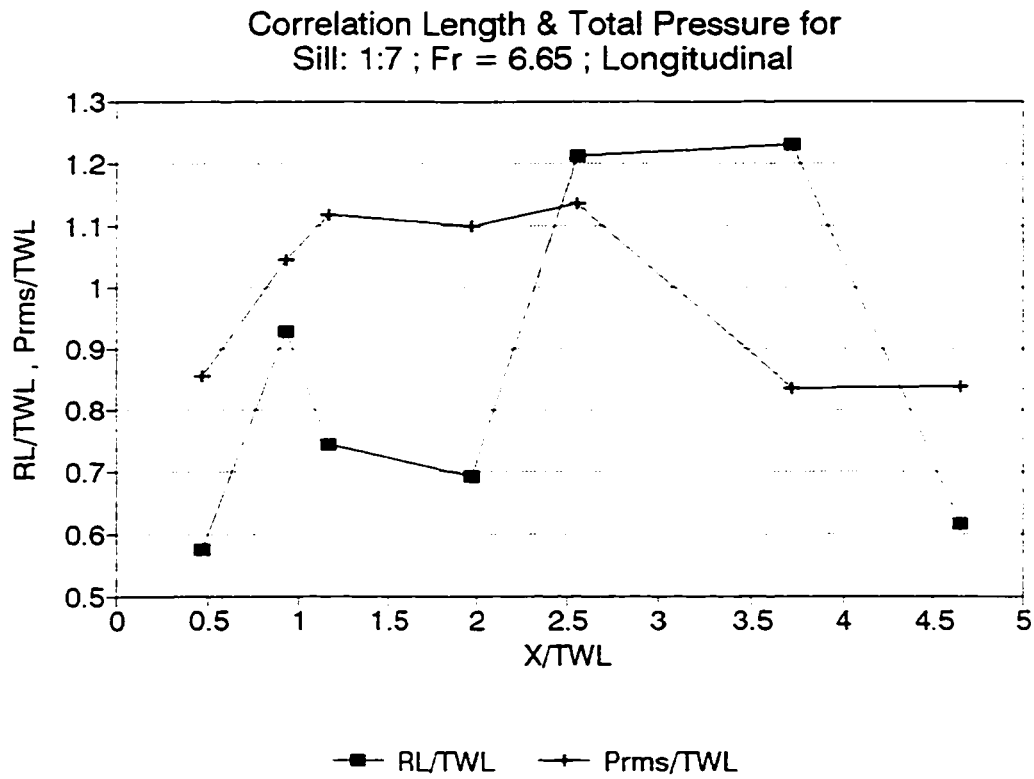


Fig. 5.178

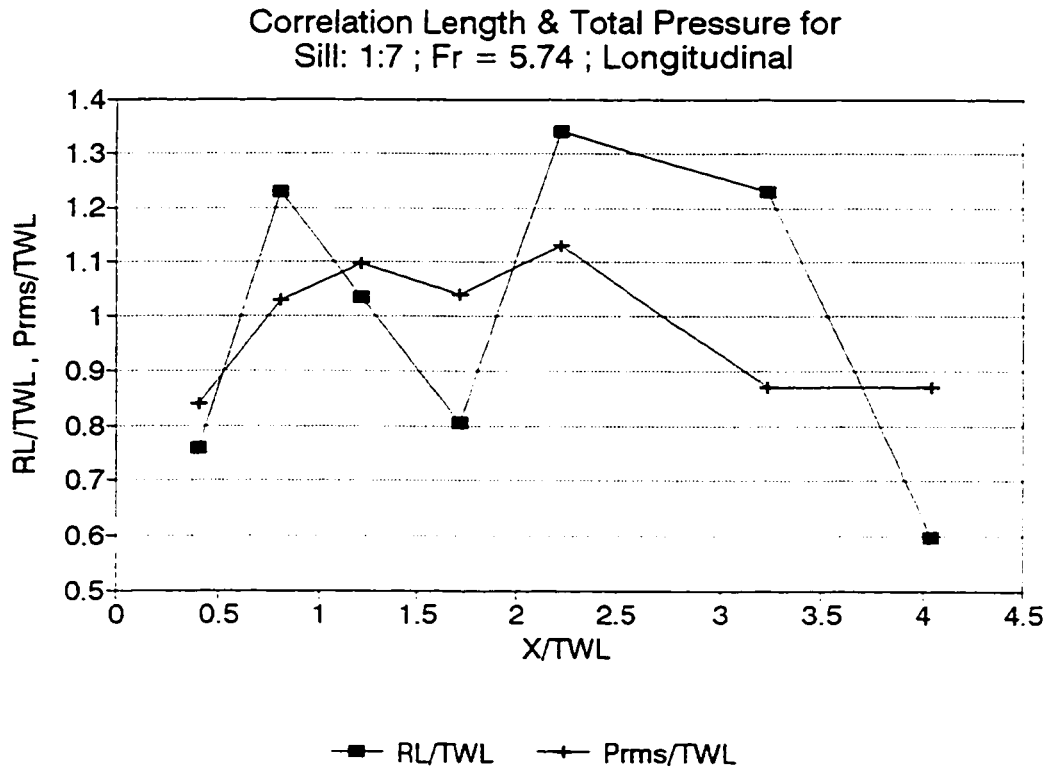


Fig. 5.179

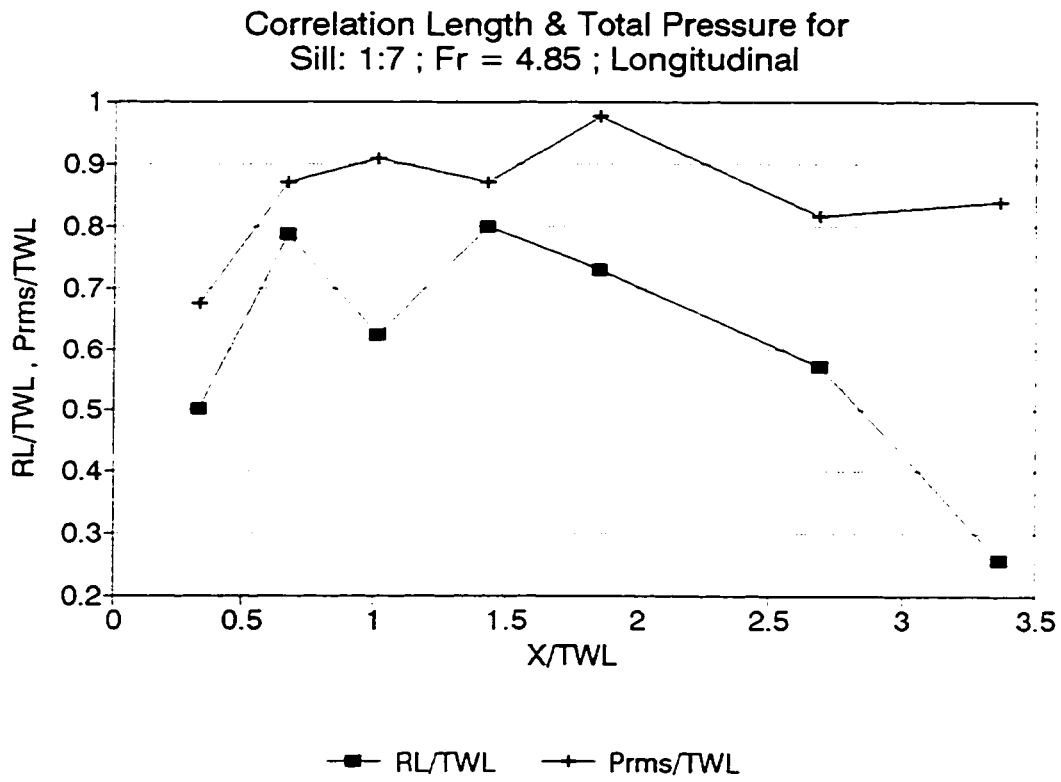


Fig. 5.180

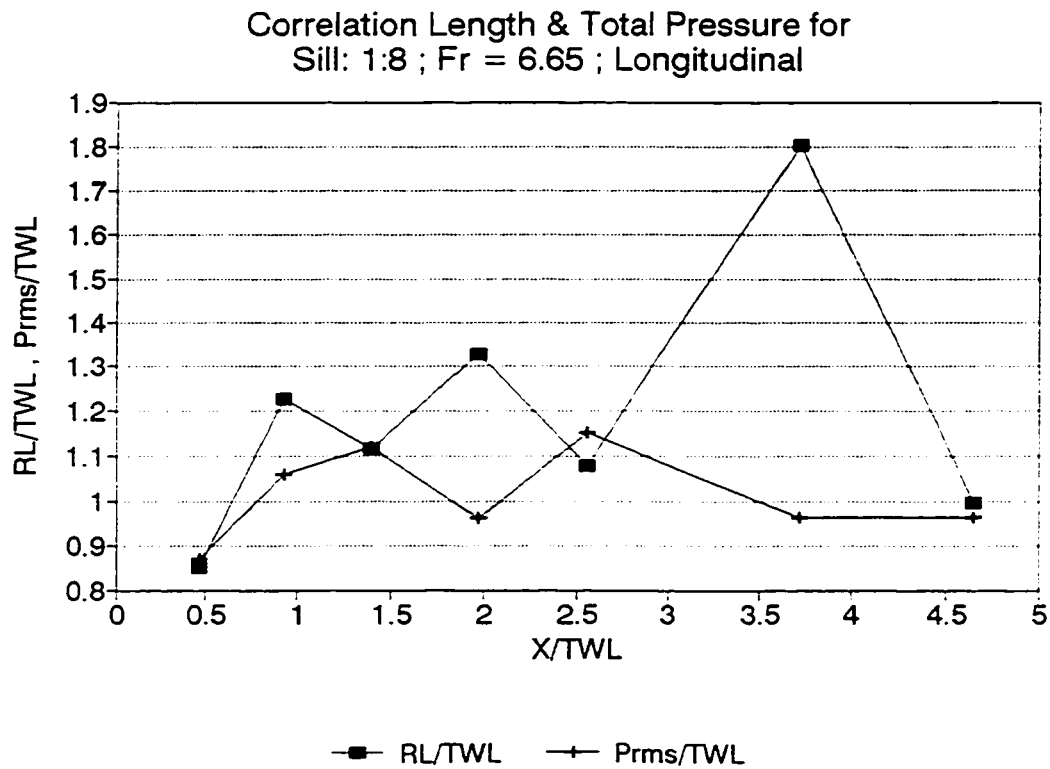


Fig. 5.181

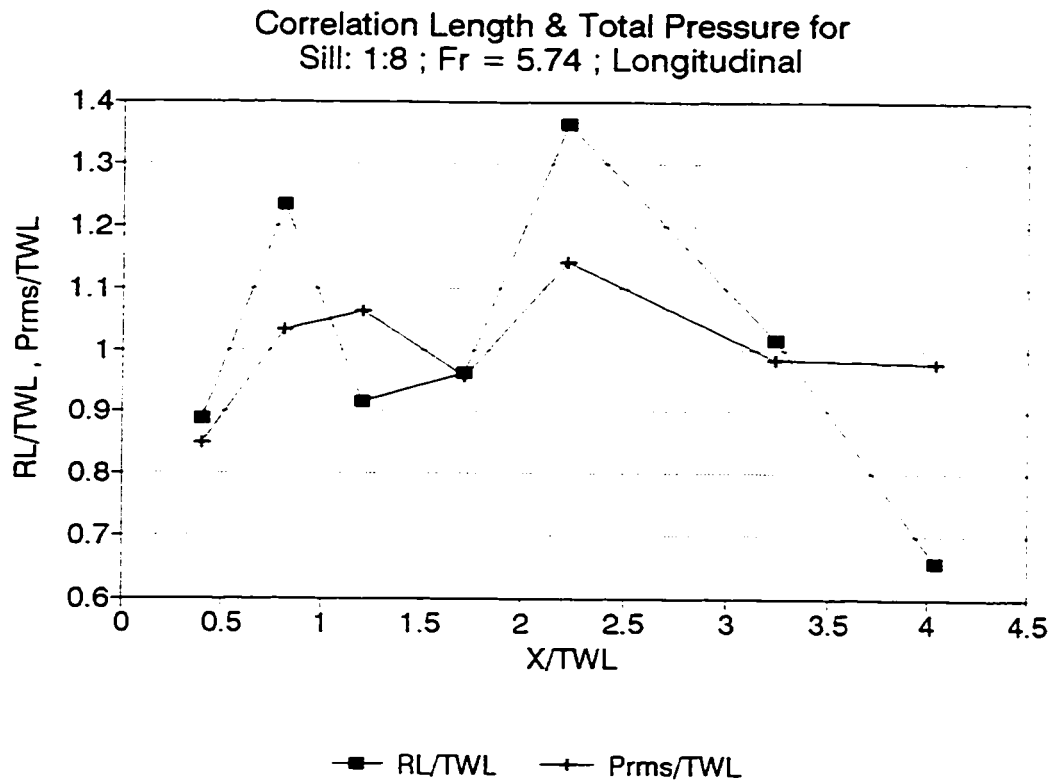


Fig. 5.182

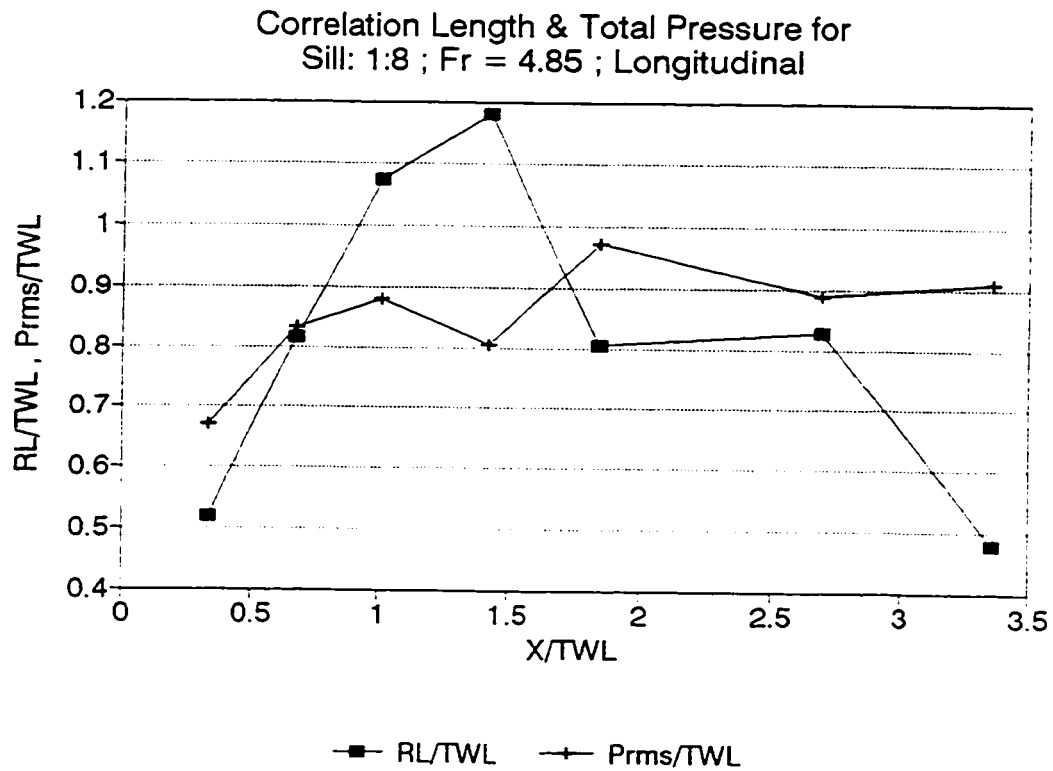


Fig. 5.183

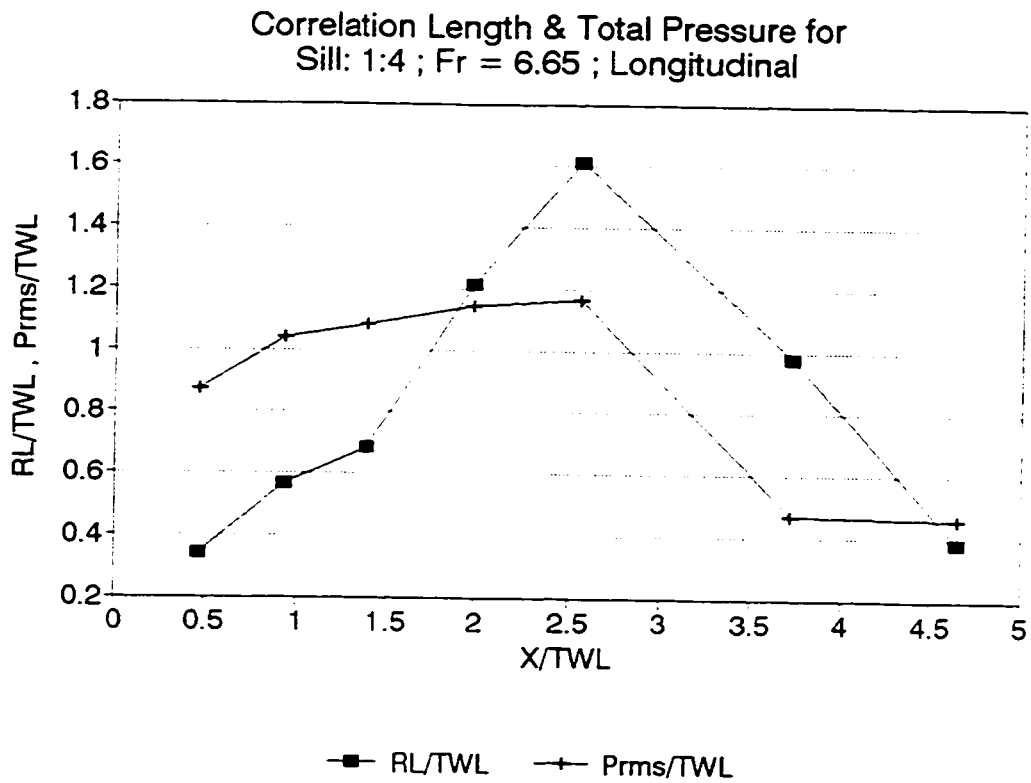


Fig. 5.184

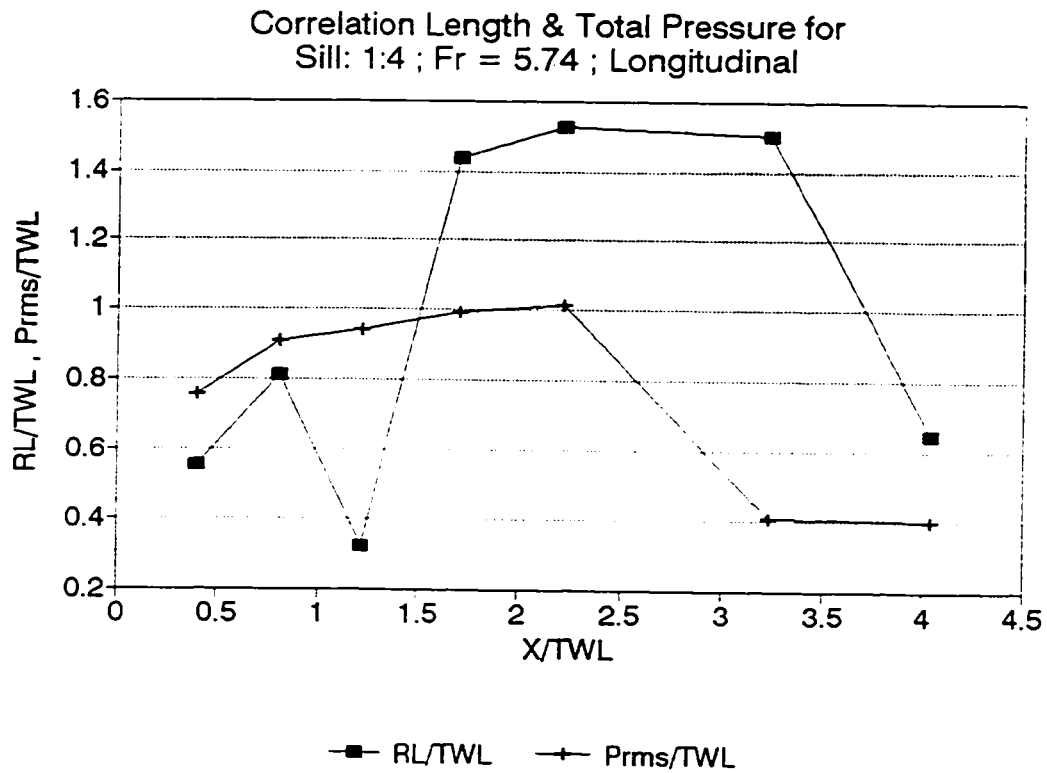


Fig. 5.185

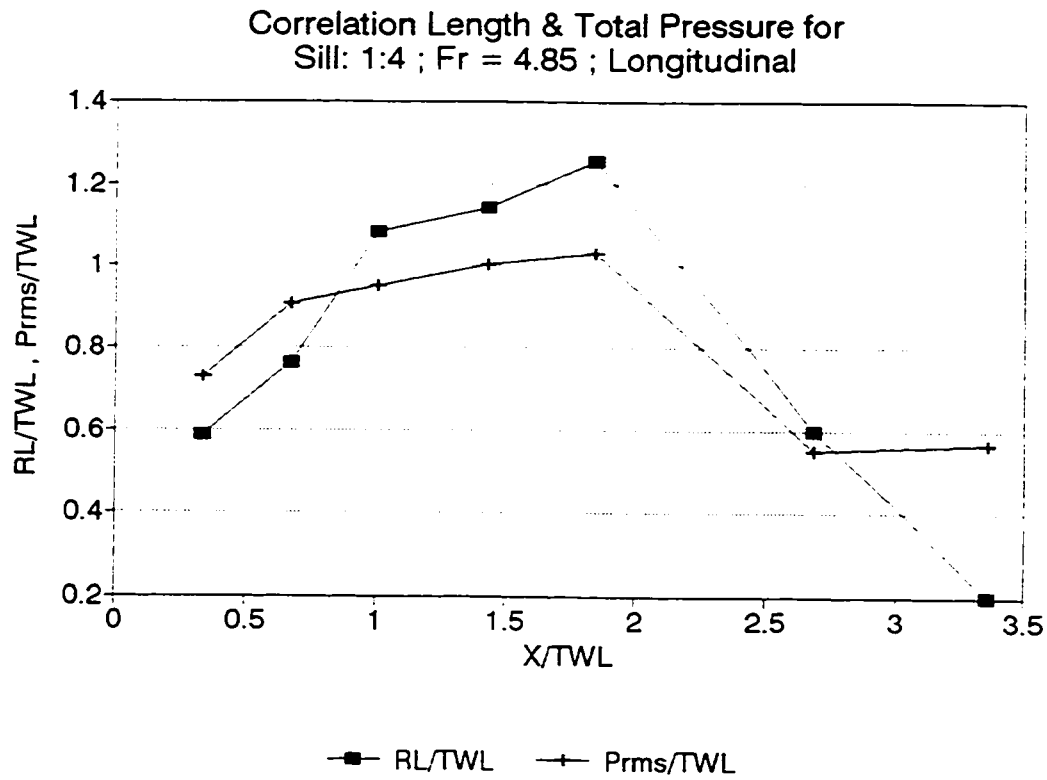


Fig. 5.186

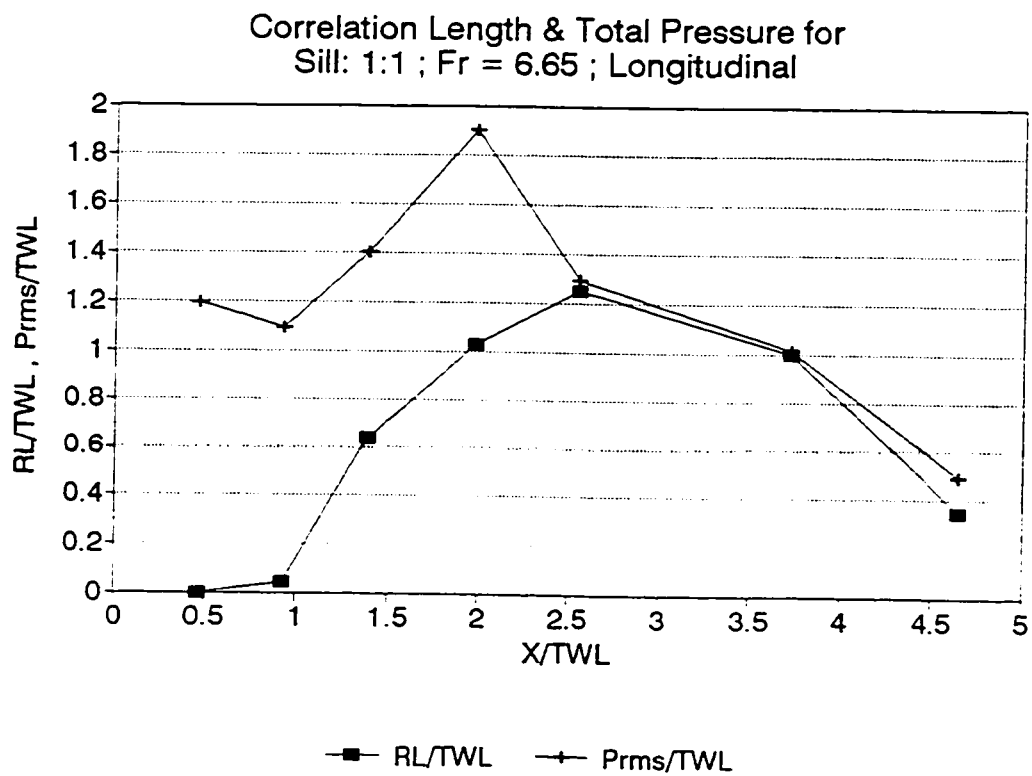


Fig. 5.187

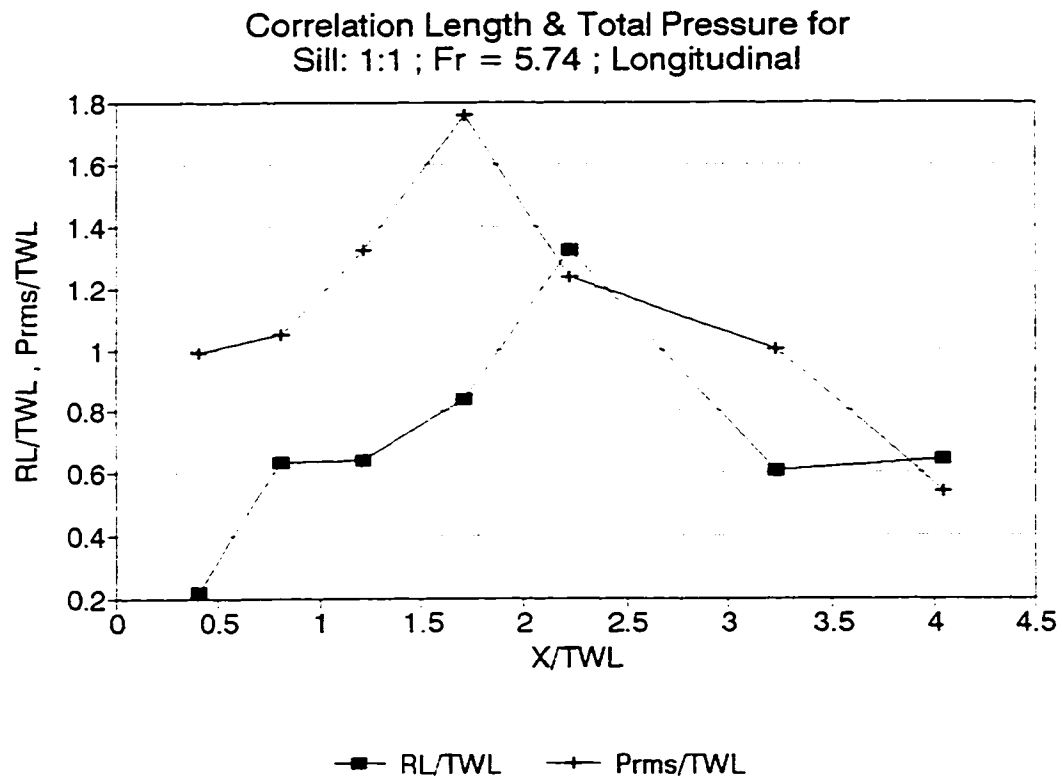


Fig. 5.188

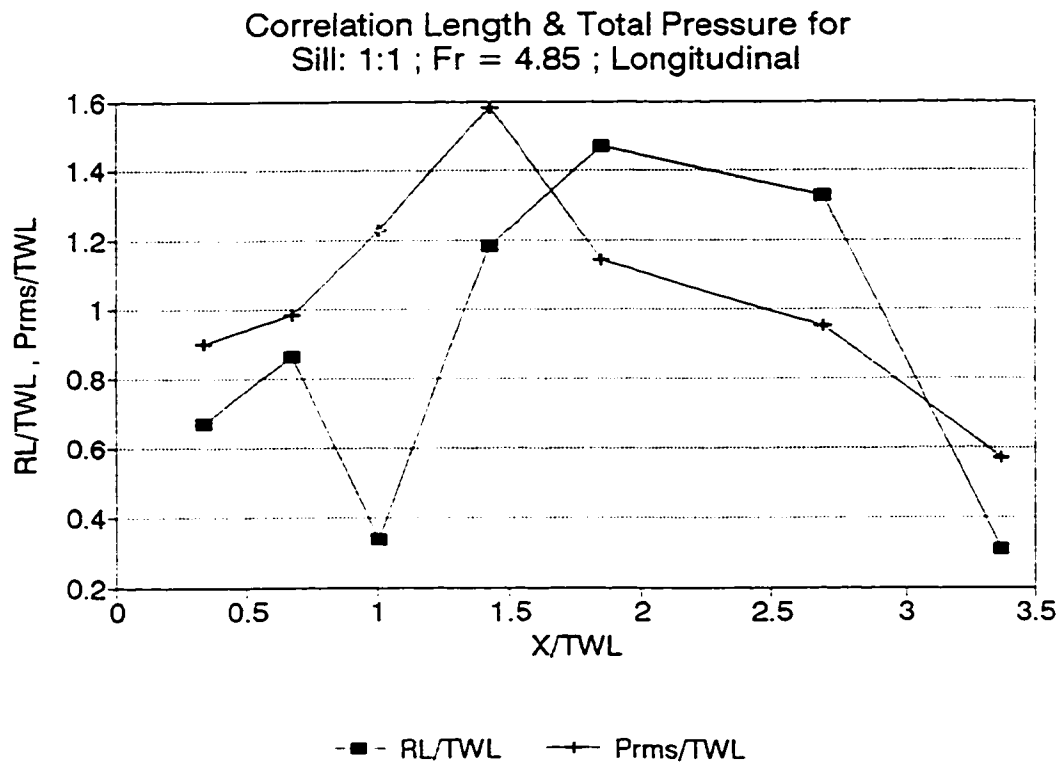


Fig. 5.189

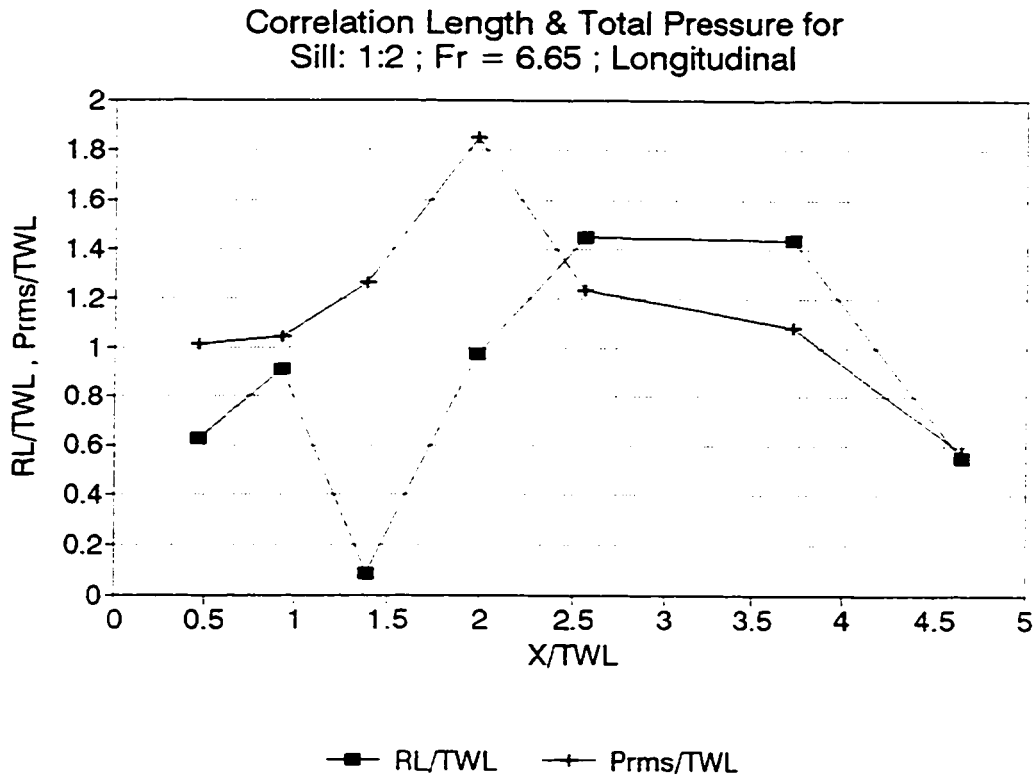


Fig. 5.190

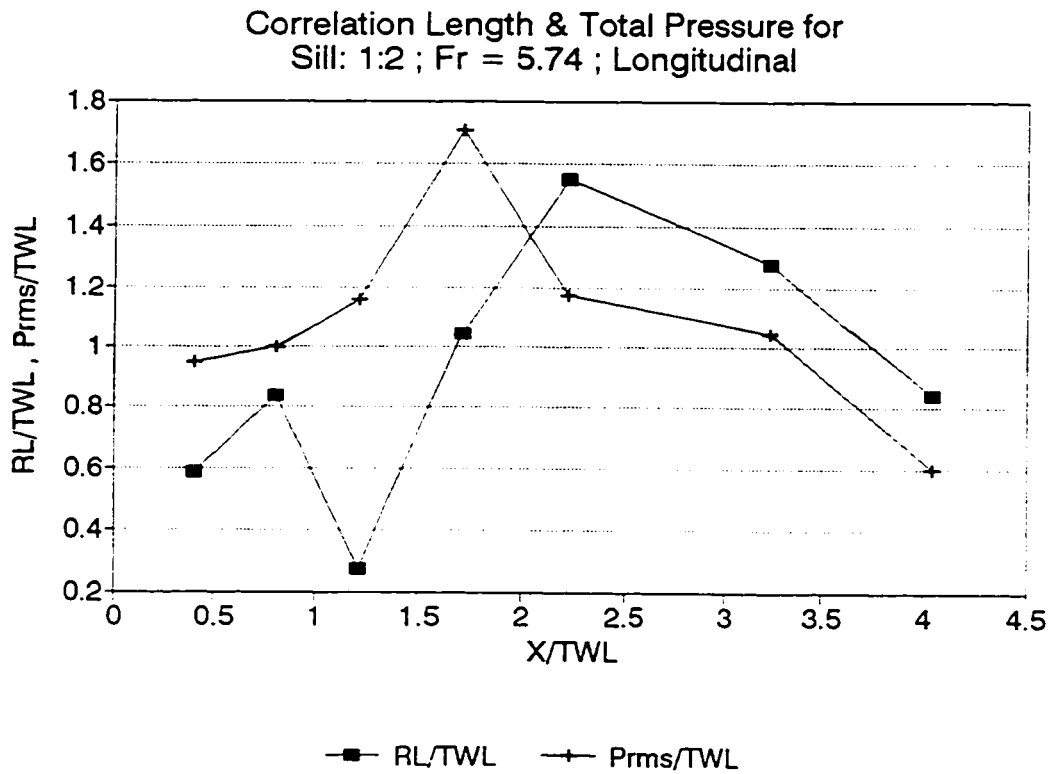


Fig. 5.191

Correlation Length & Total Pressure for
Sill: 1:2 ; $Fr = 4.85$; Longitudinal

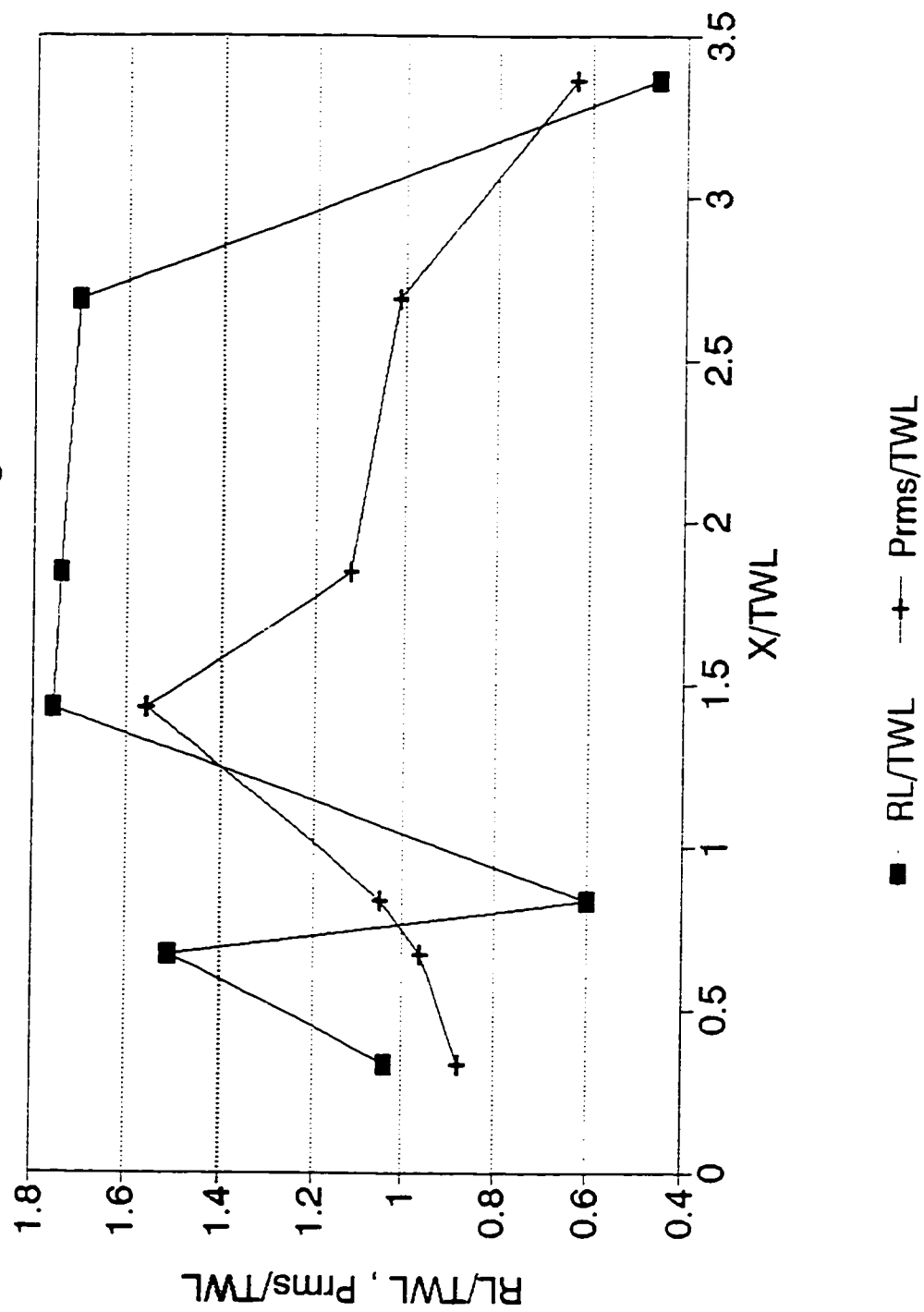


Fig. 5.192

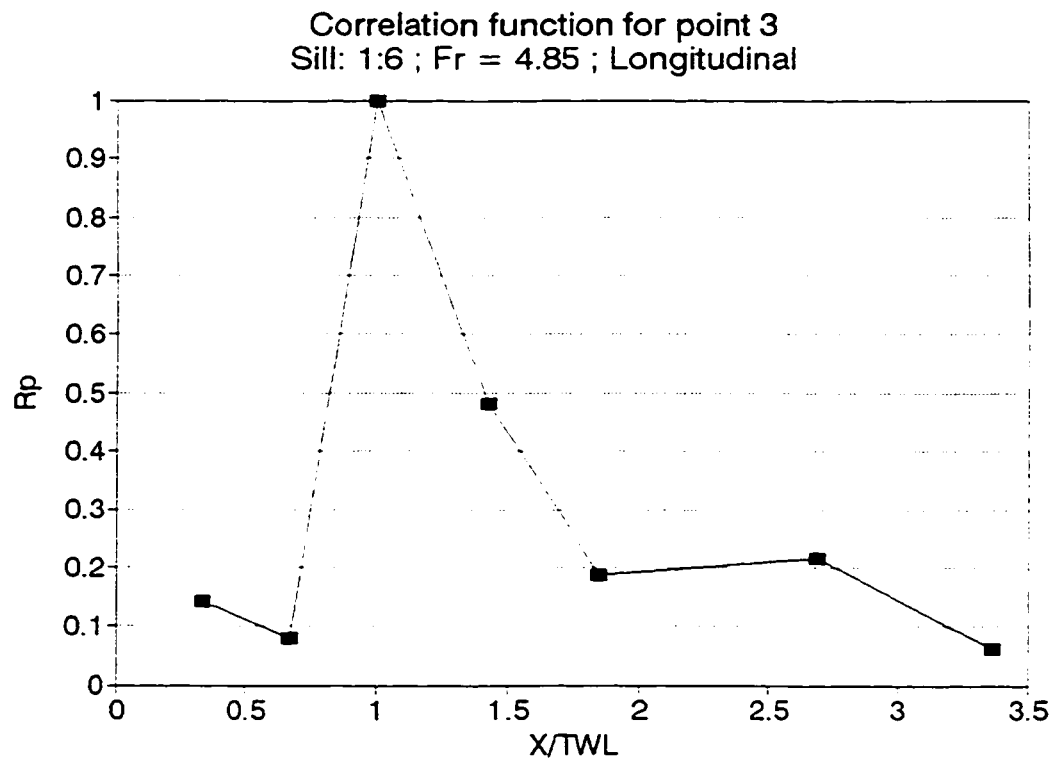


Fig. 5.193

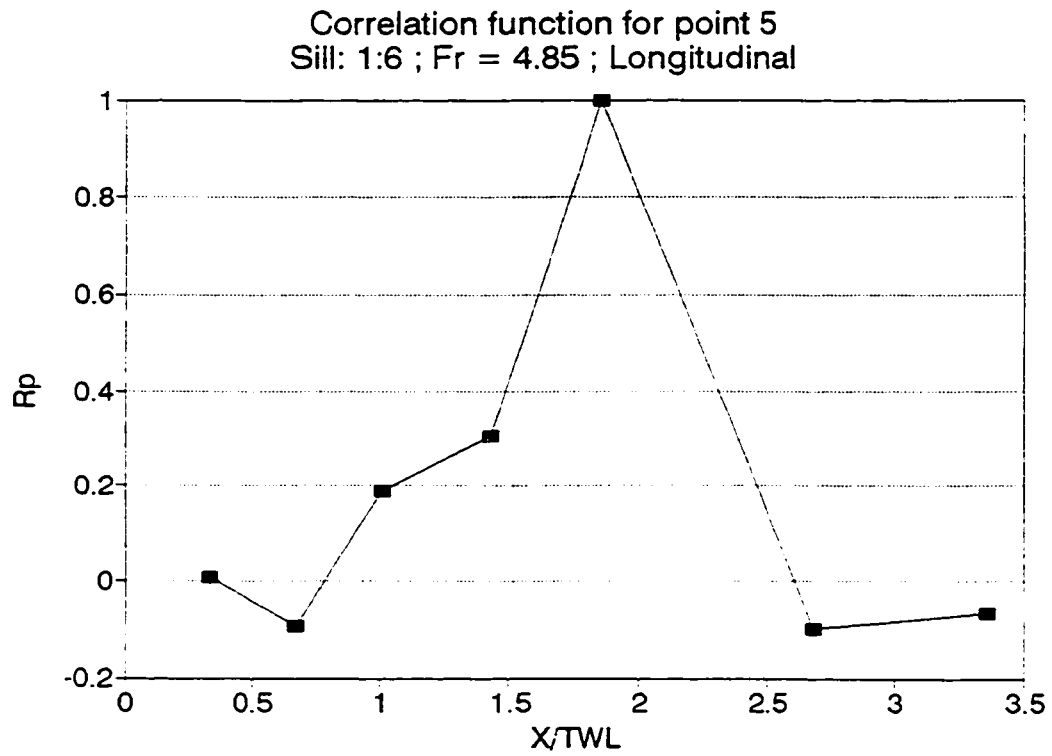


Fig. 5.194

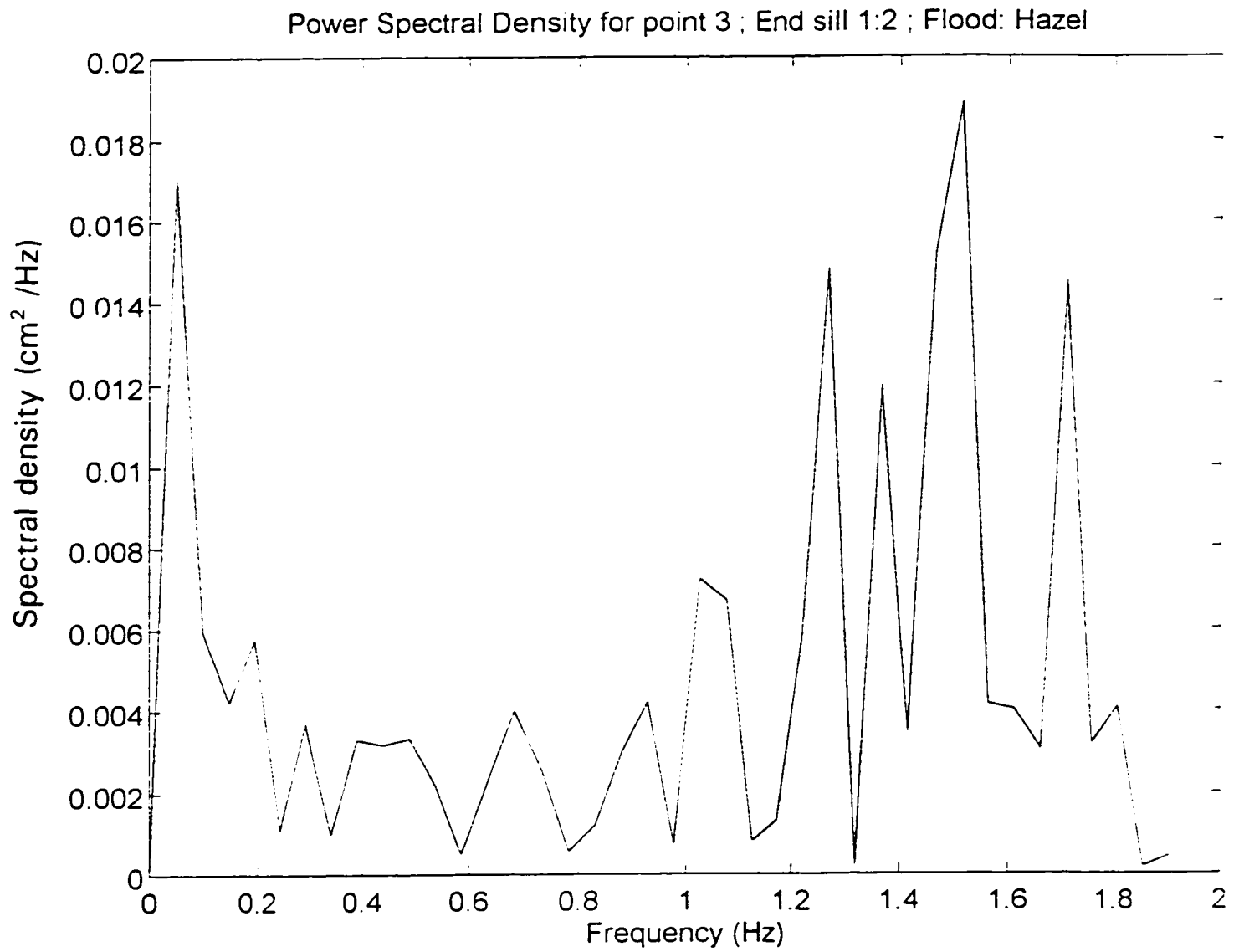


Fig. 5.195

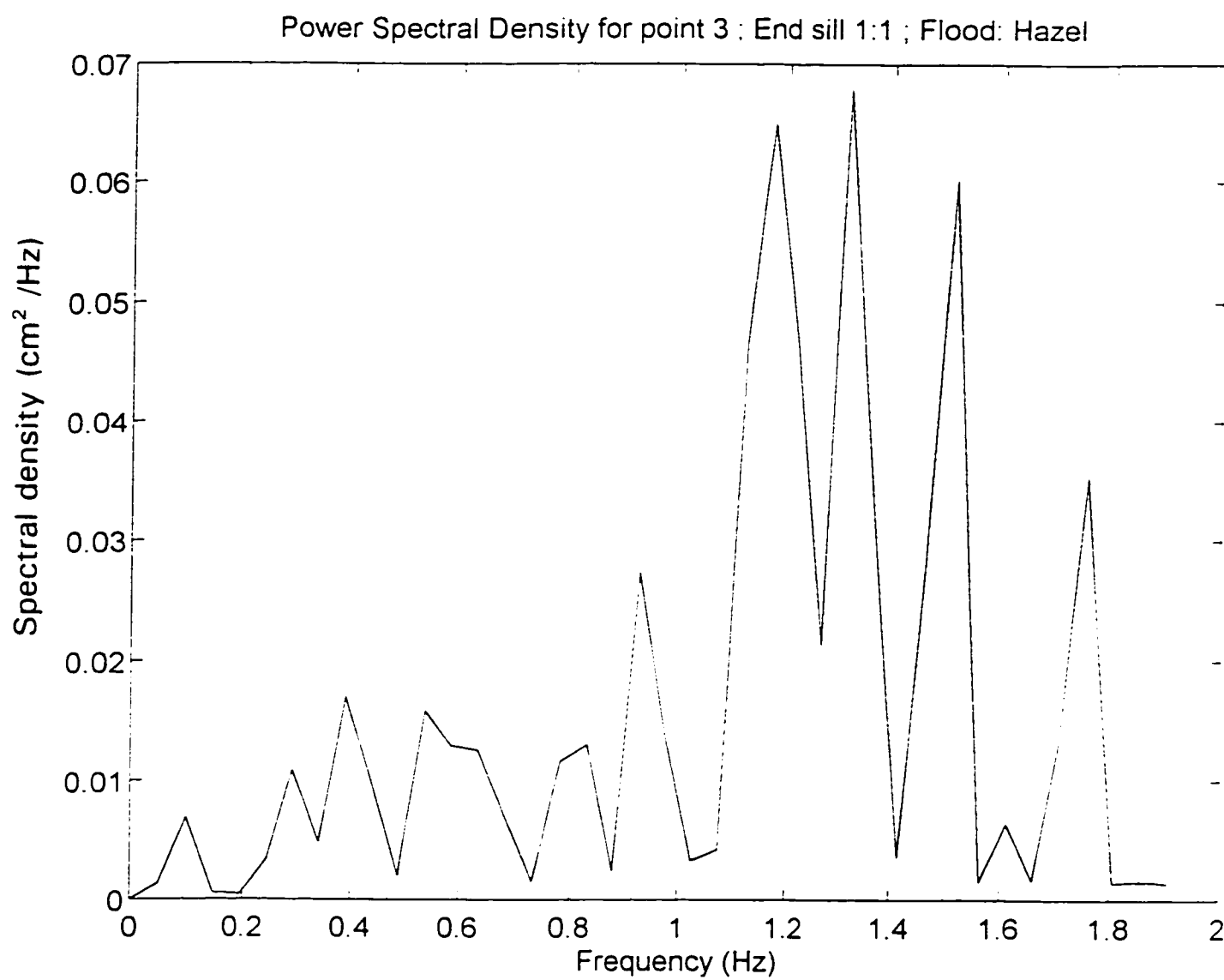


Fig. 5.196

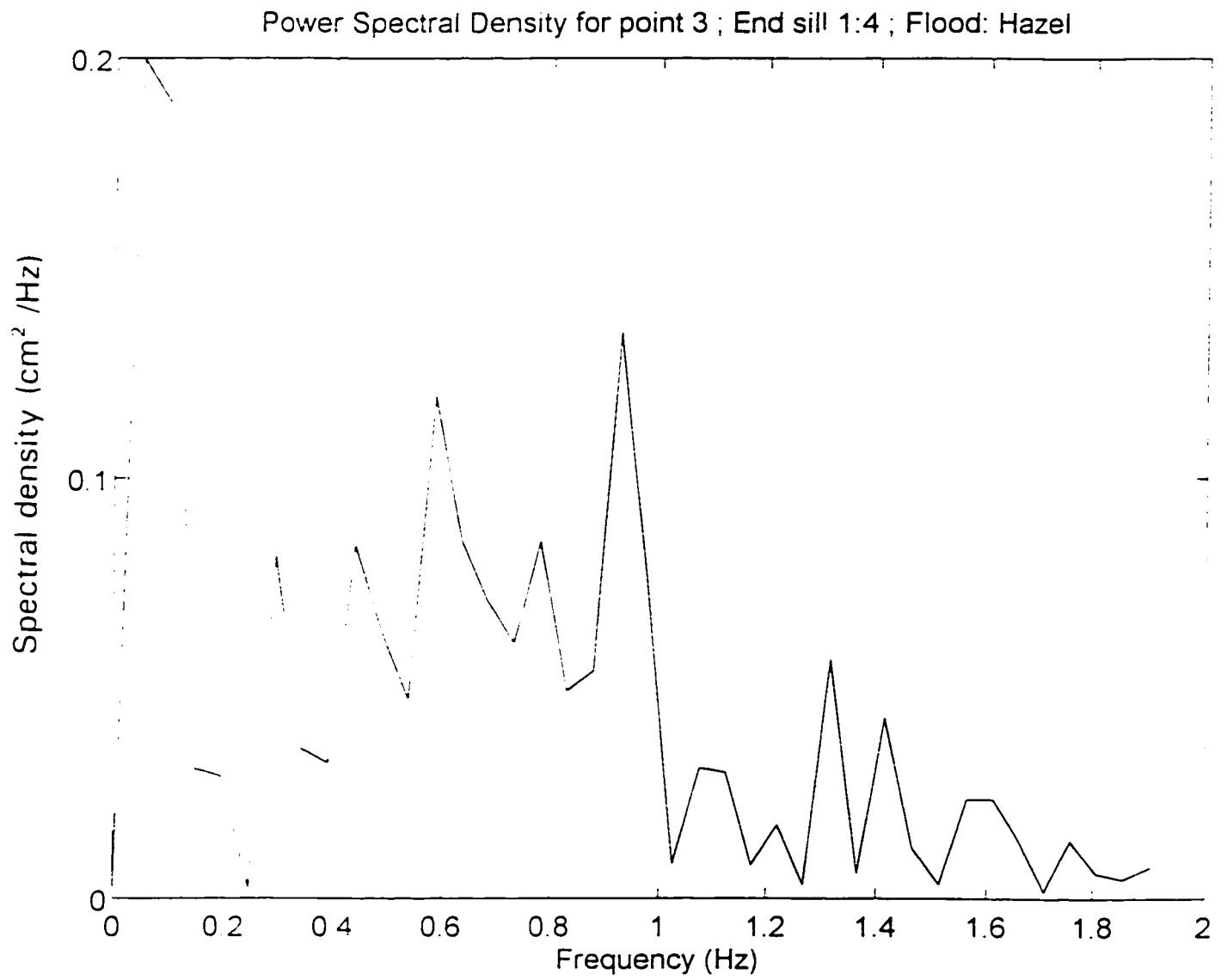


Fig. 5.197

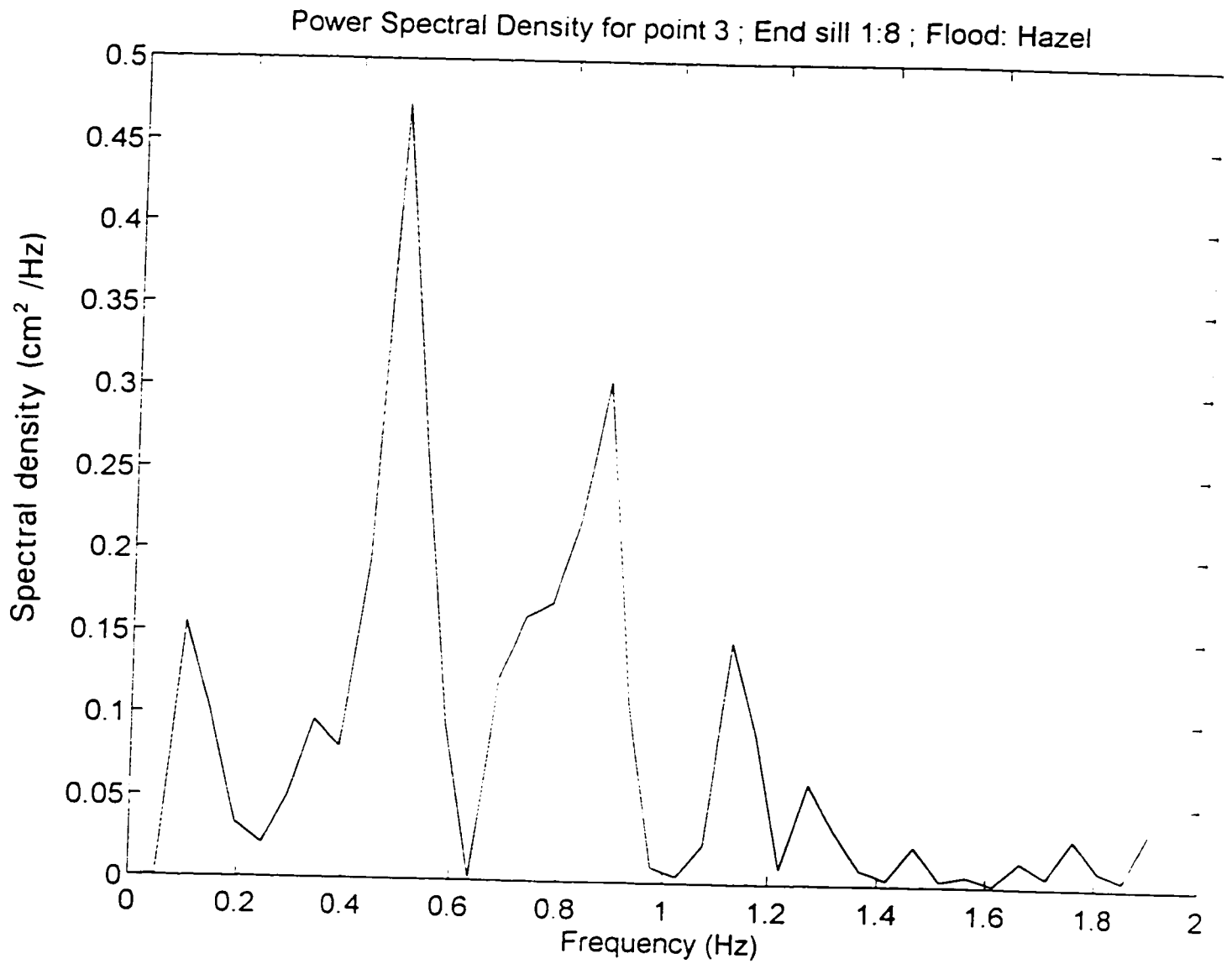


Fig. 5.198

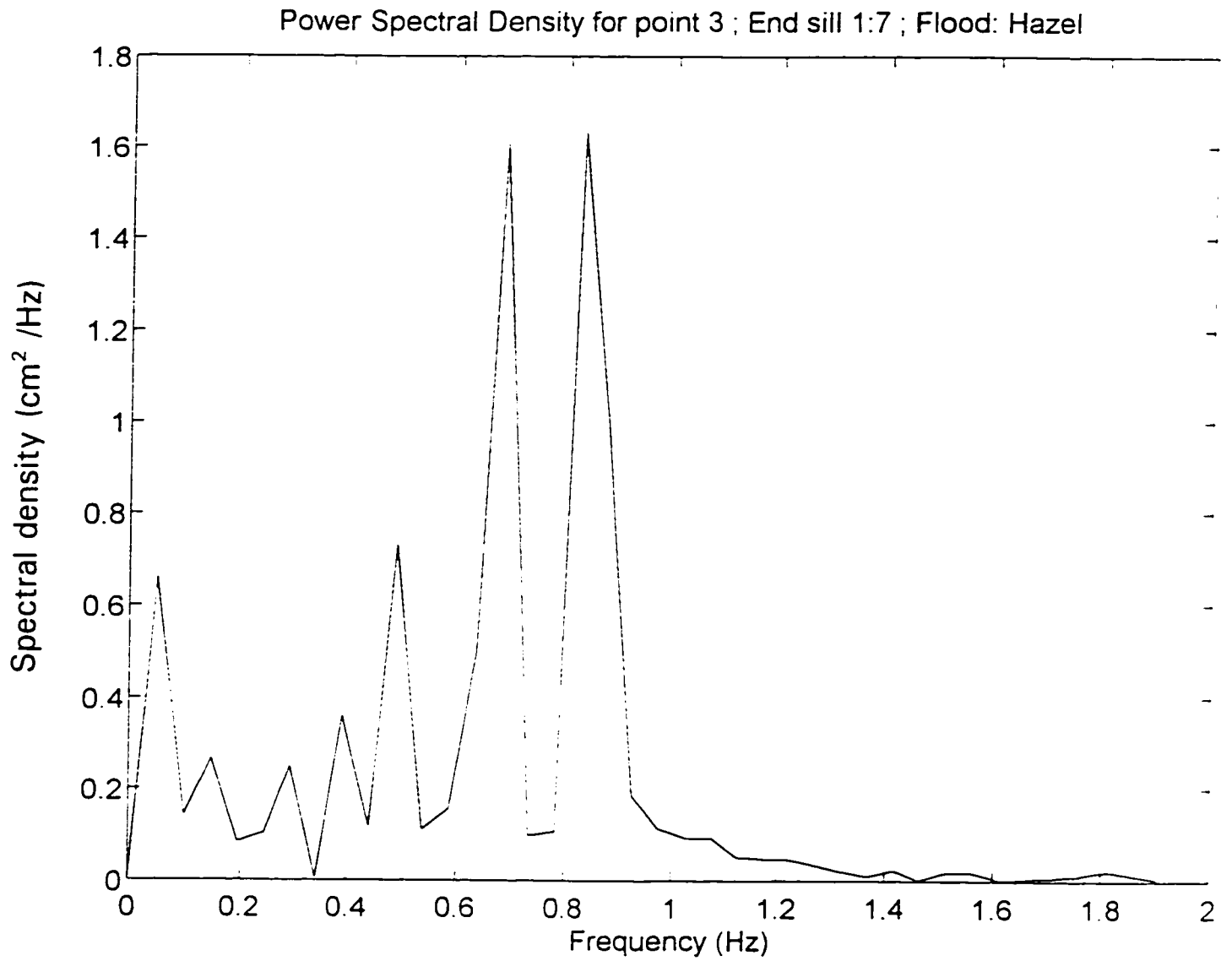


Fig. 5.199

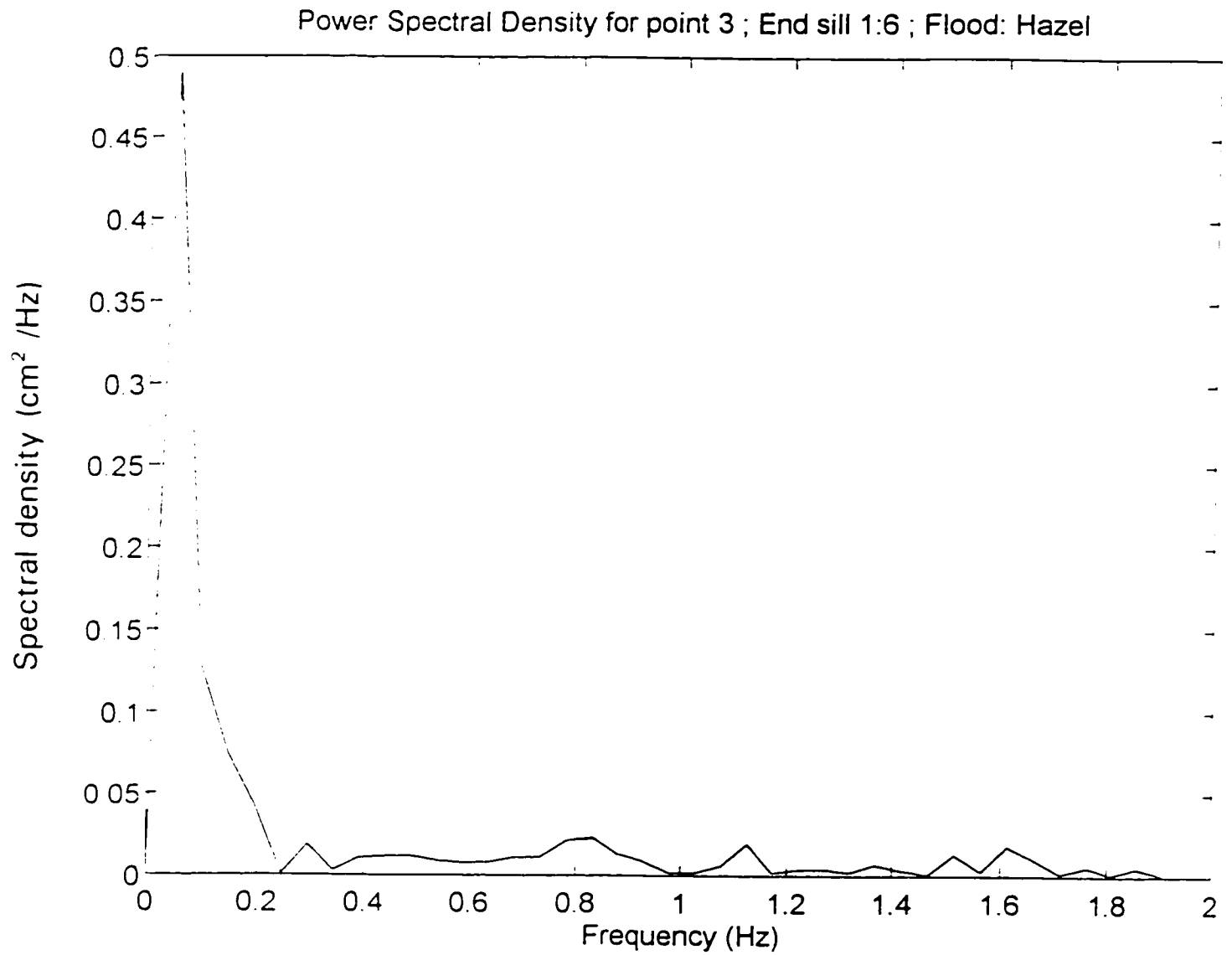


Fig. 5.200

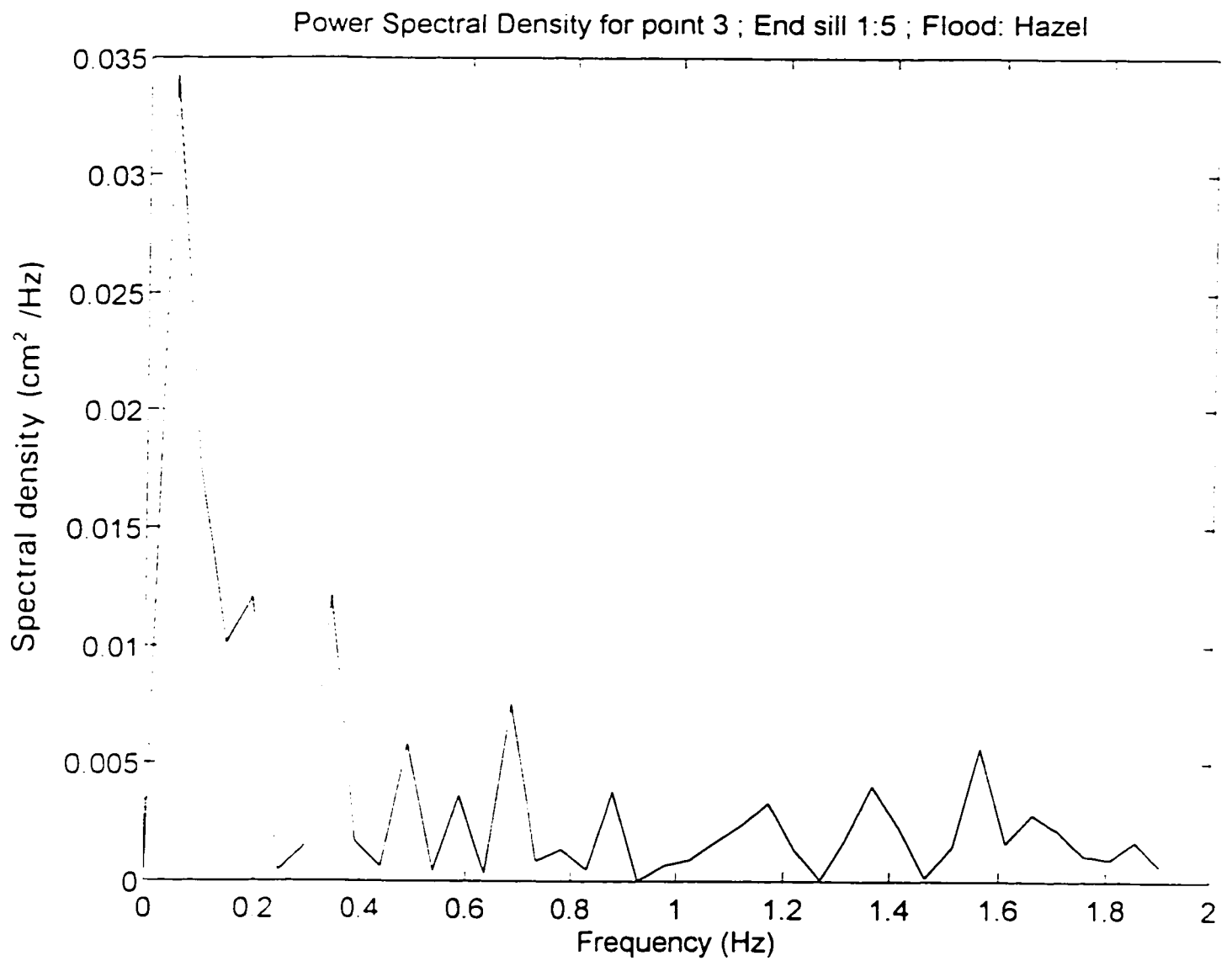


Fig. 5.201

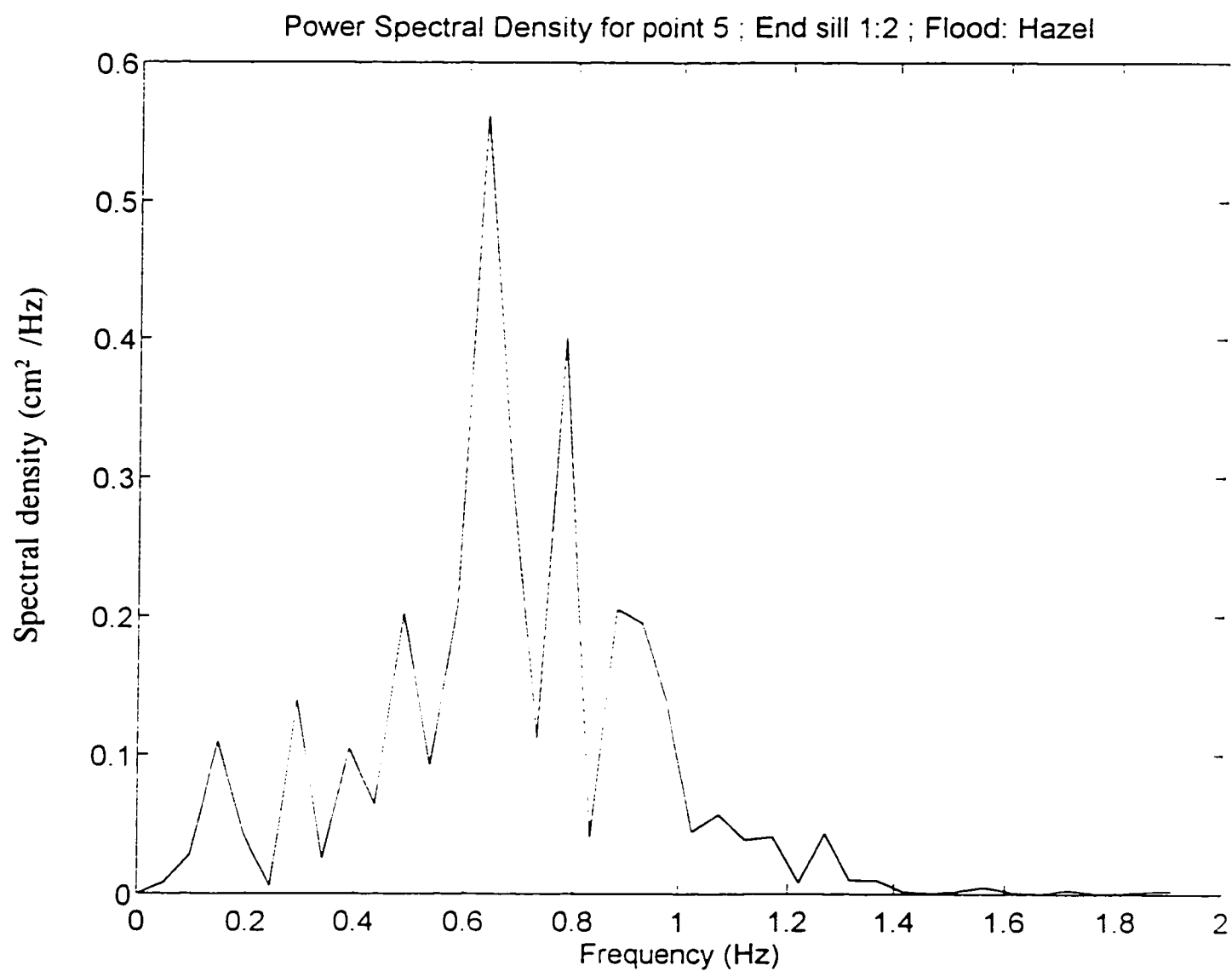


Fig. 5.202

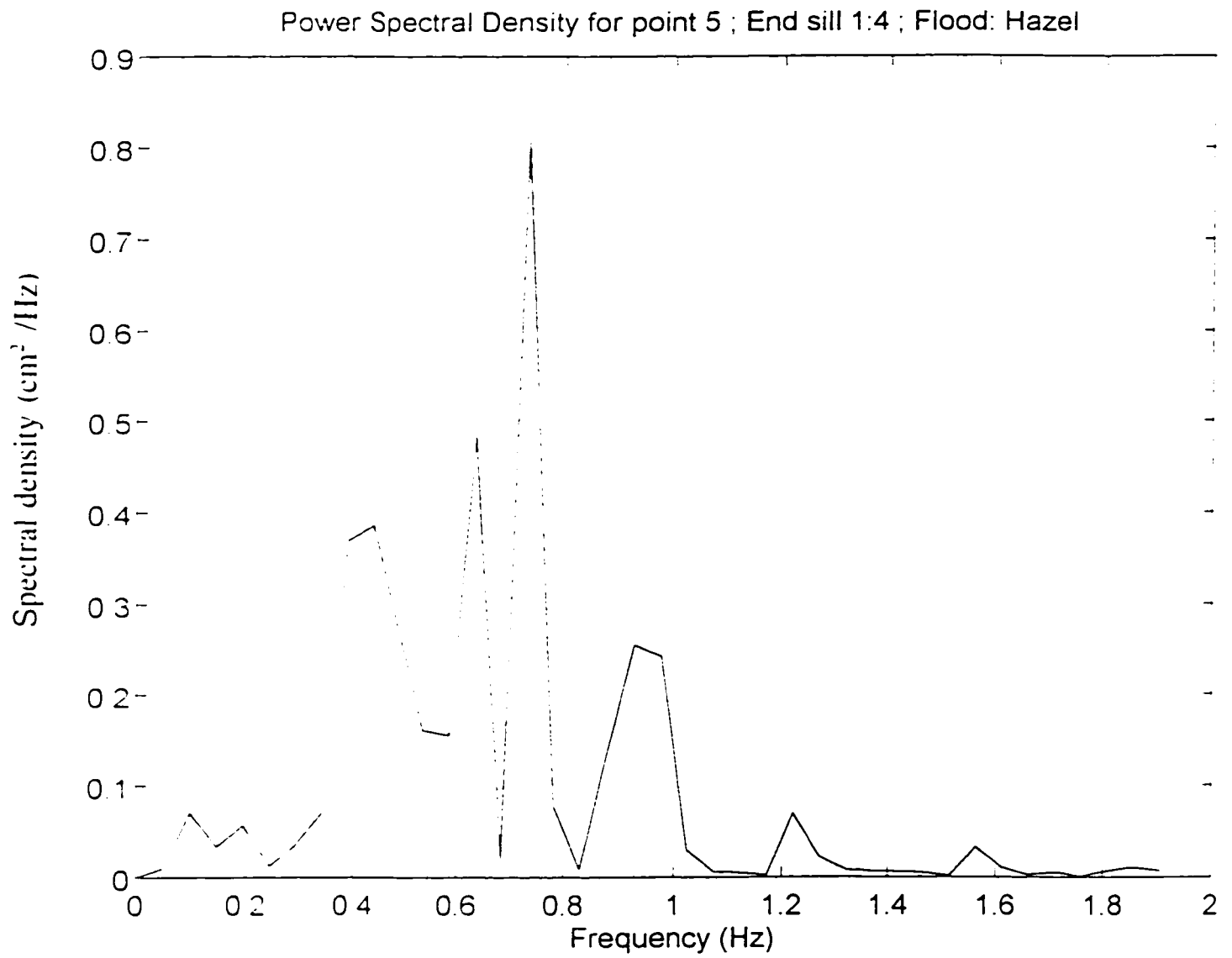


Fig. 5.203

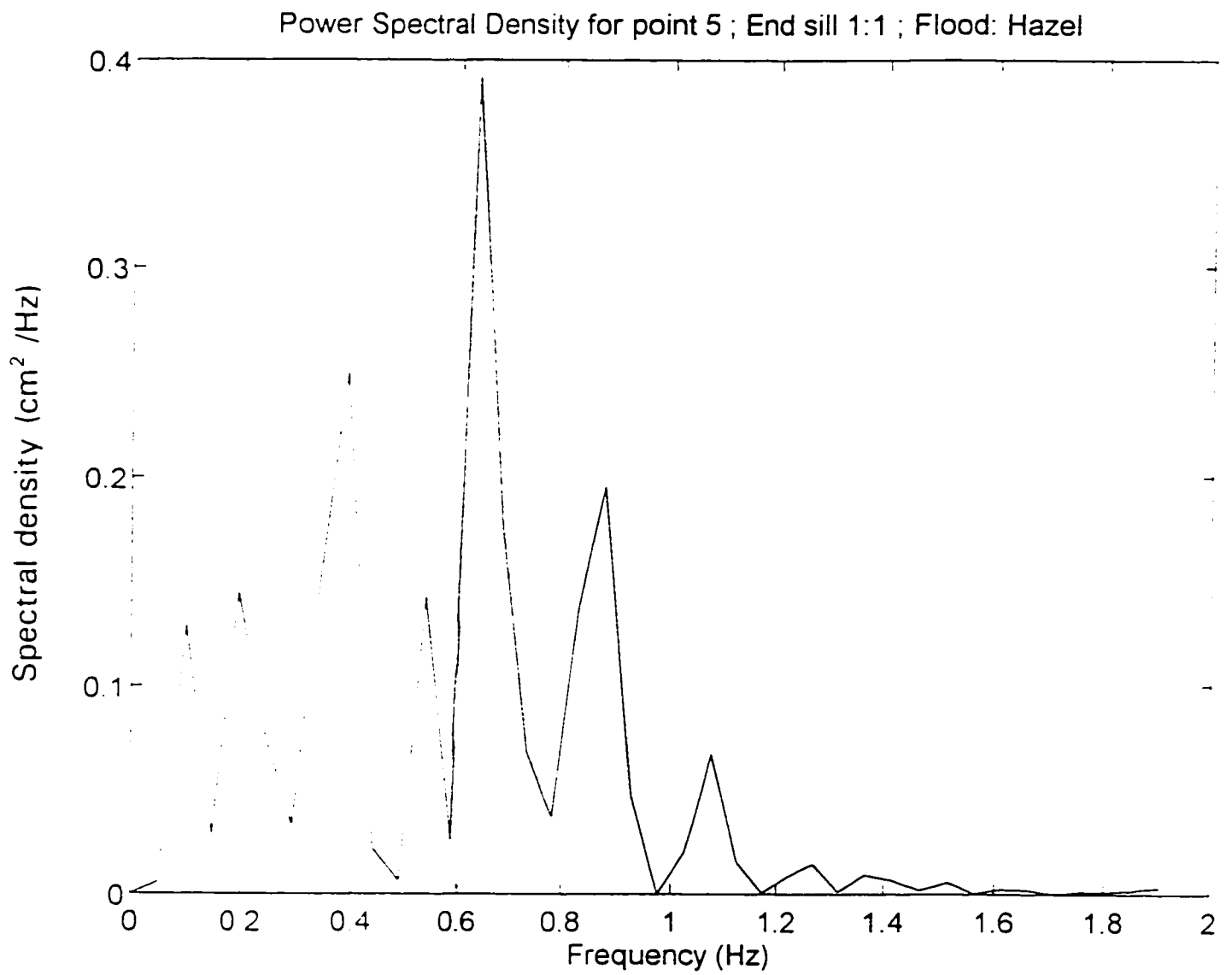


Fig. 5.204

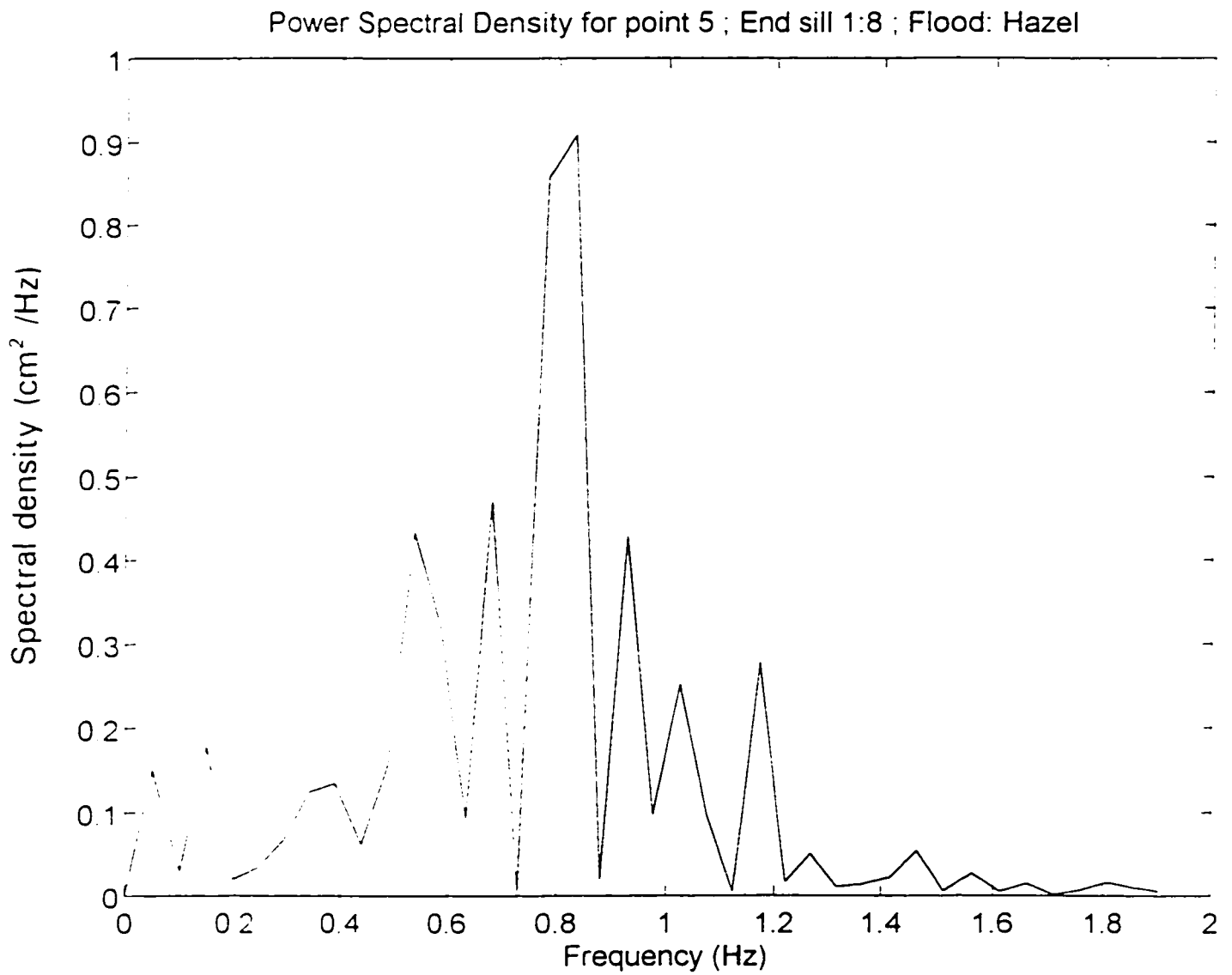


Fig. 5.205

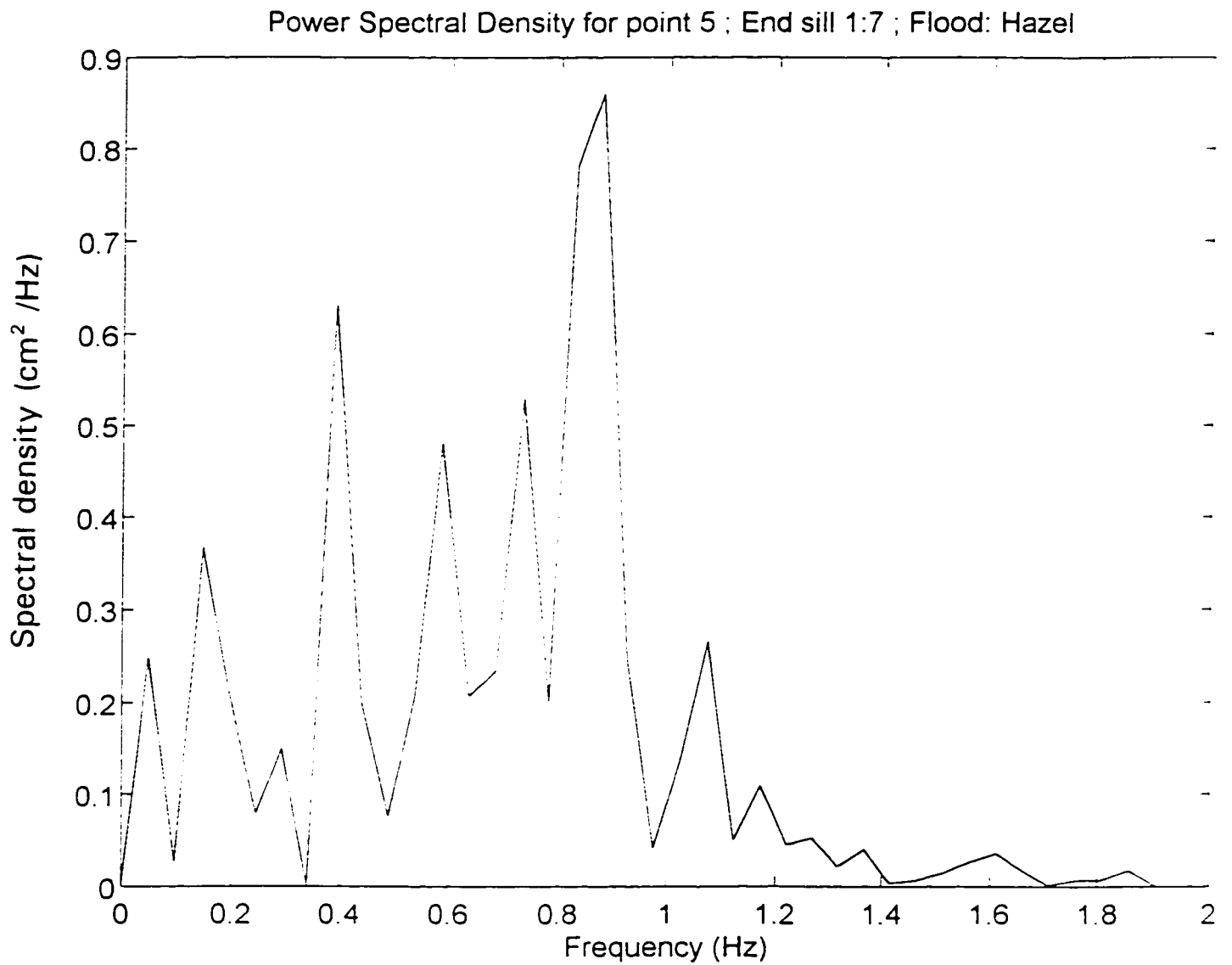


Fig. 5.206

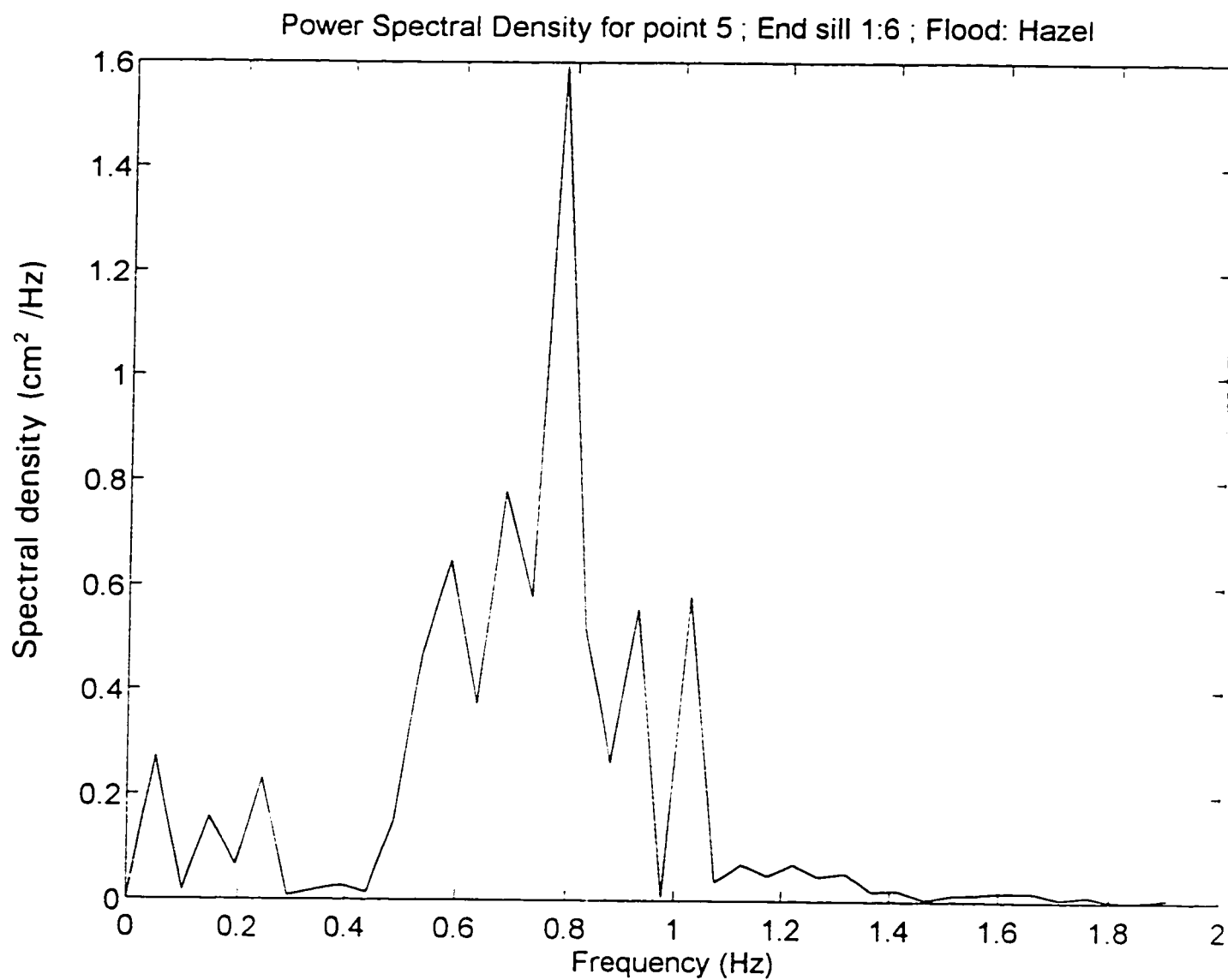


Fig. 5.207

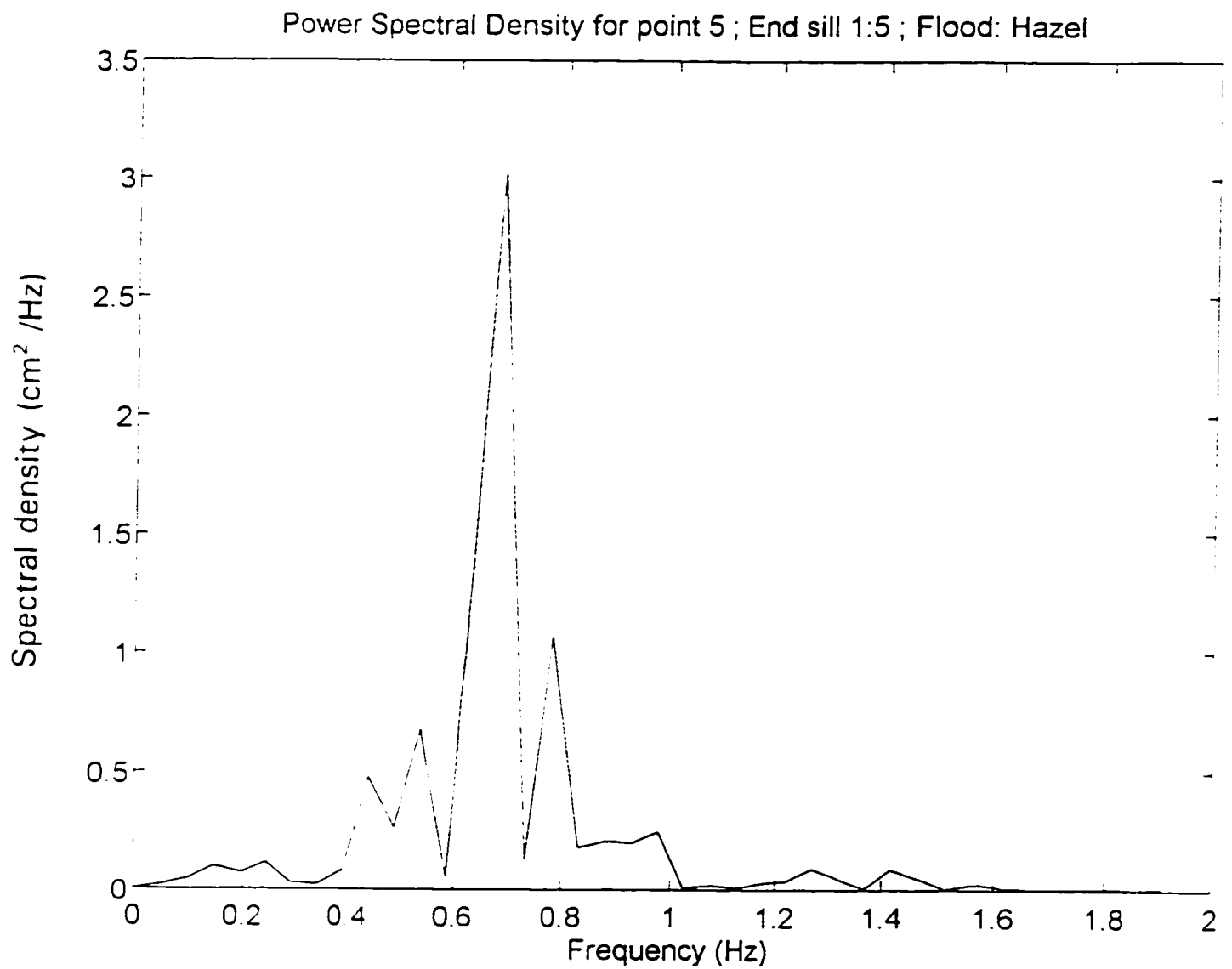


Fig. 6.1

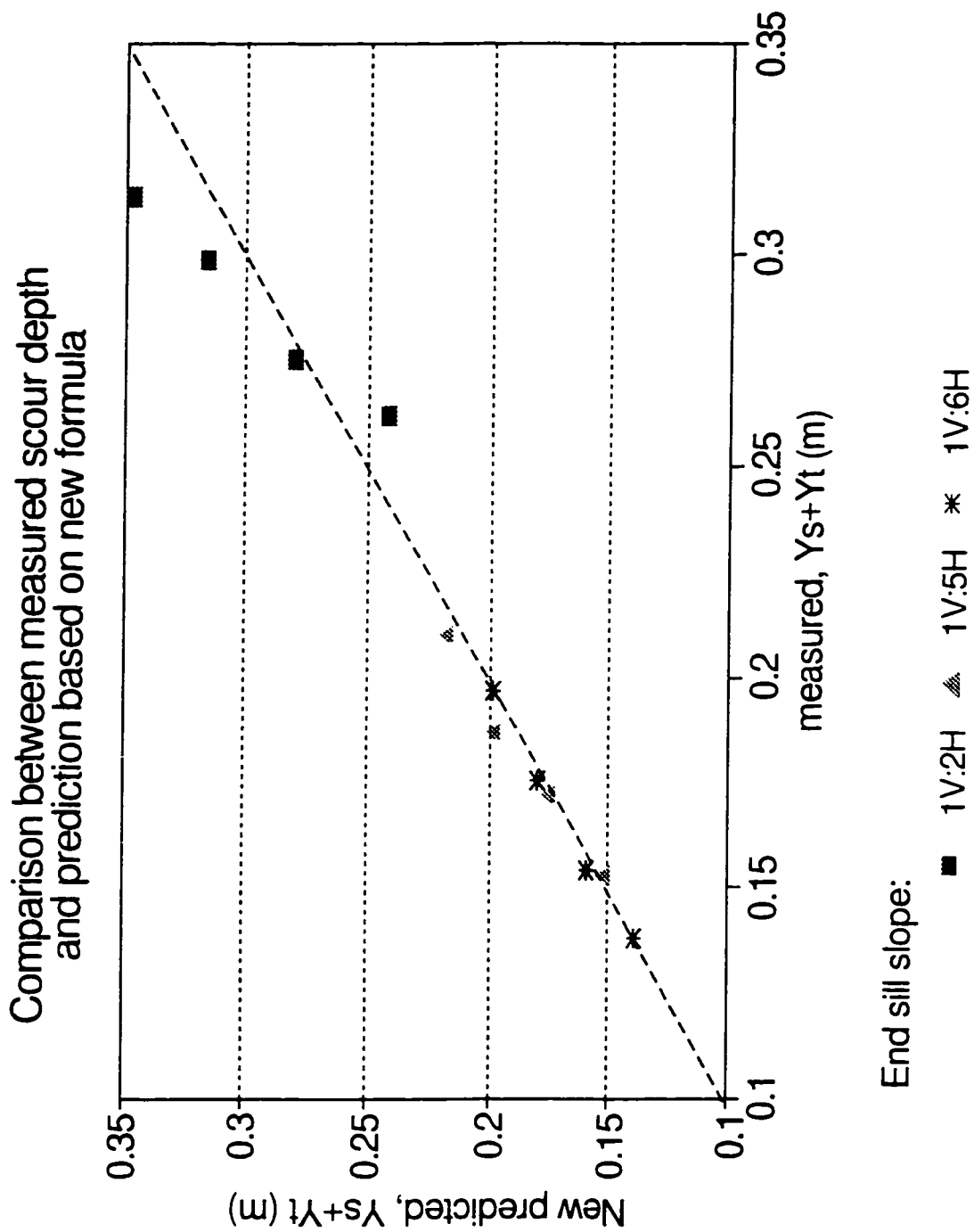
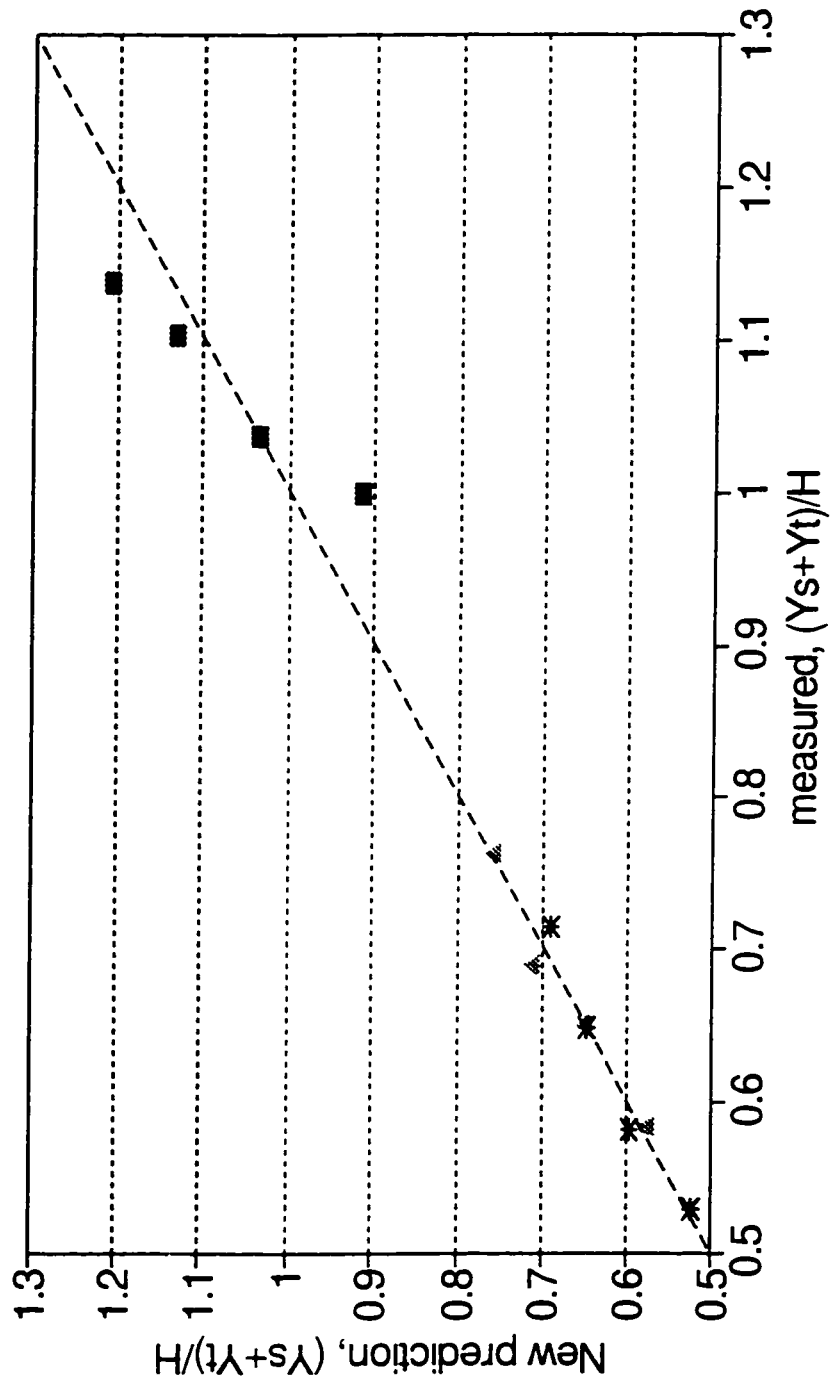


Fig. 6.2

Non-dimensional comparison between
measured and predicted scour depths

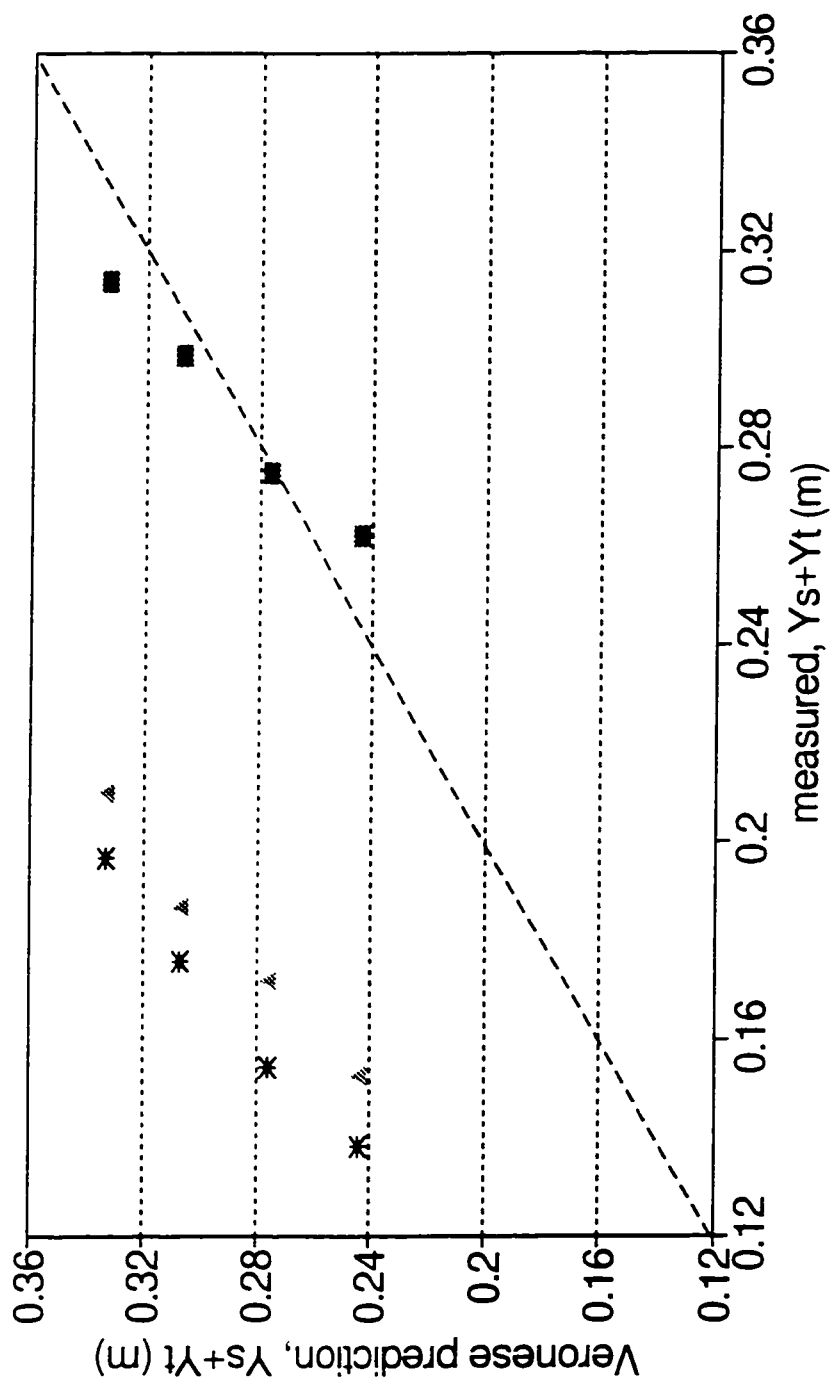


End sill slopes:

1V:2H
 1V:5H
 1V:6H

Fig. 6.3

Comparison bet. Shand dam experim. data
& prediction based on Veronese formula



End sill slopes:

■ 1V:2H ▤ 1V:5H * 1V:6H

Fig. 6.4

Comparison bet. Shand dam experim. data
and prediction based on Catakli formula

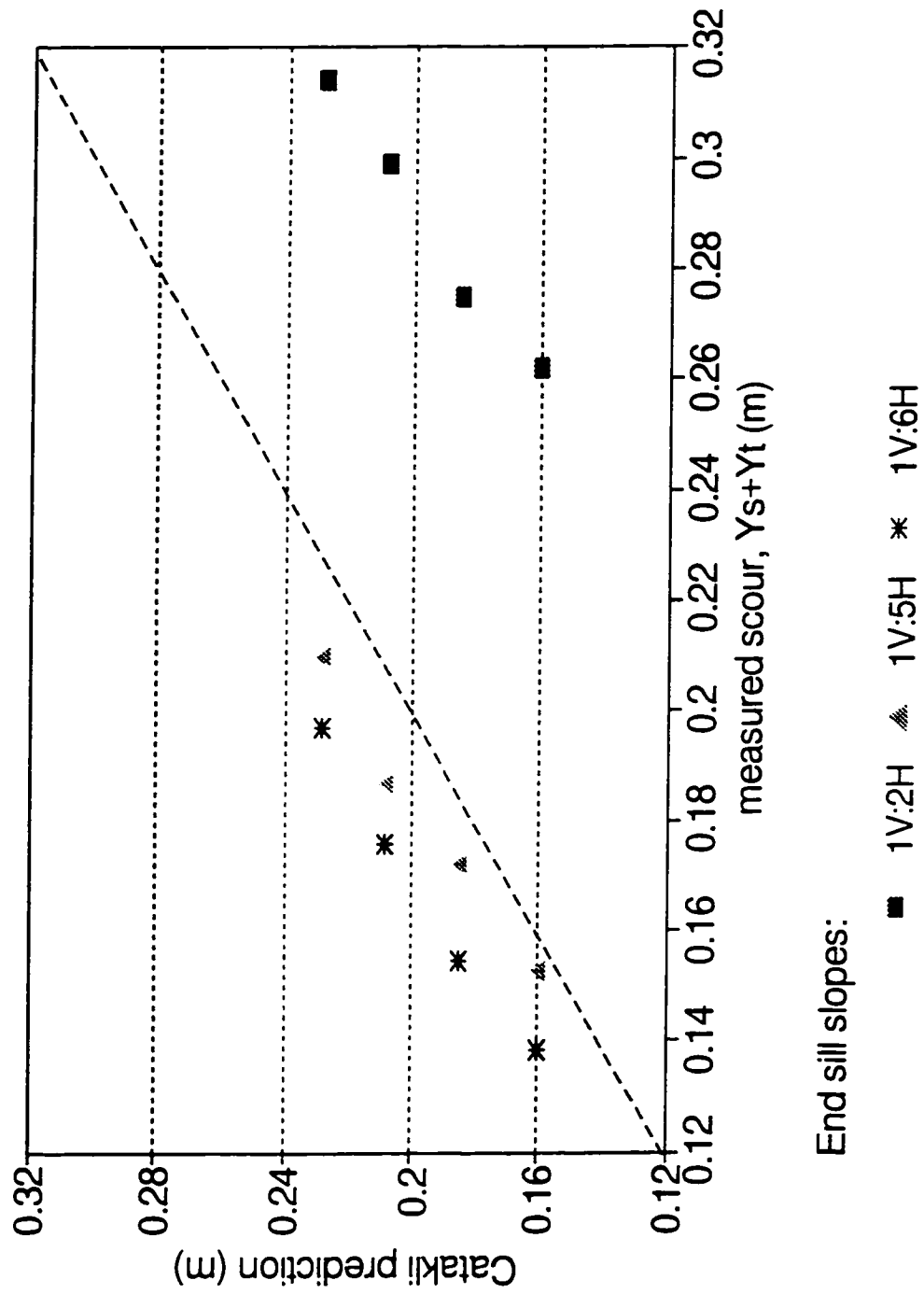
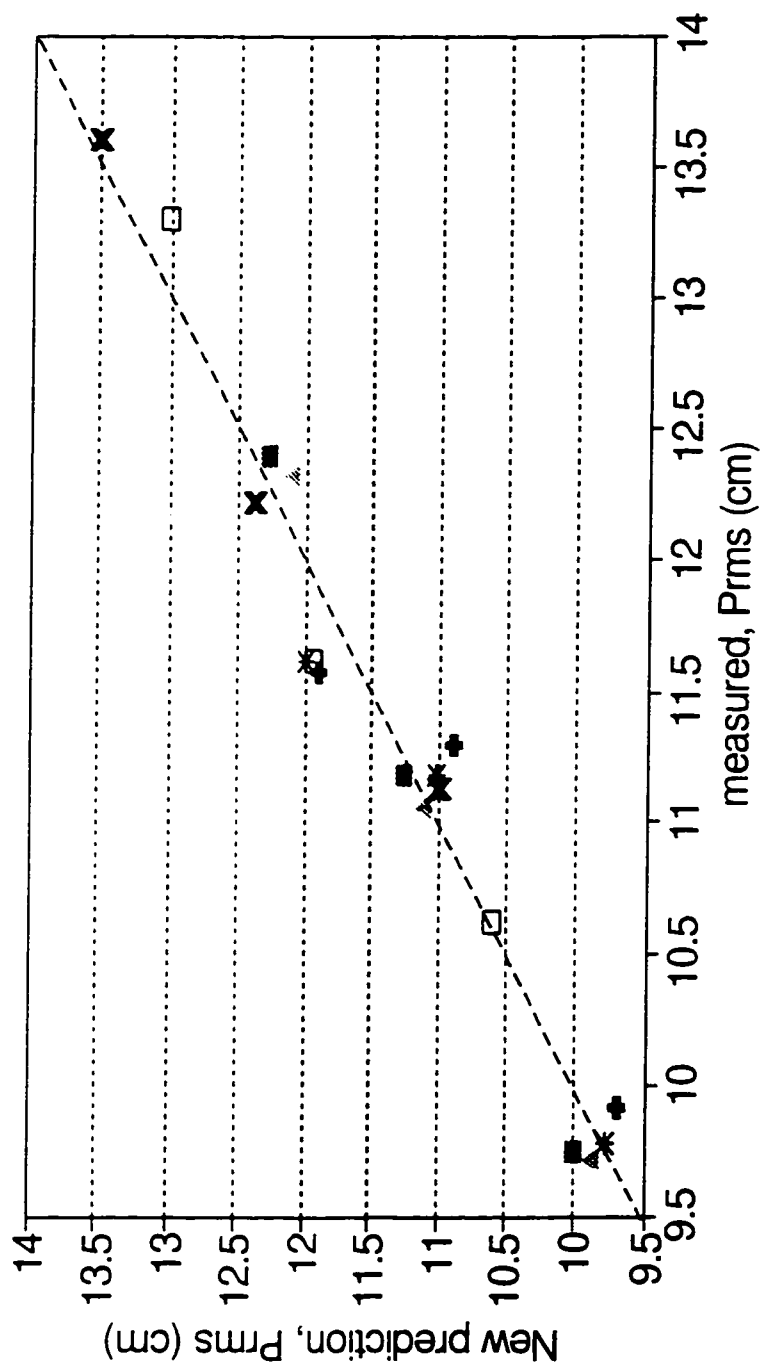


Fig. 6.5

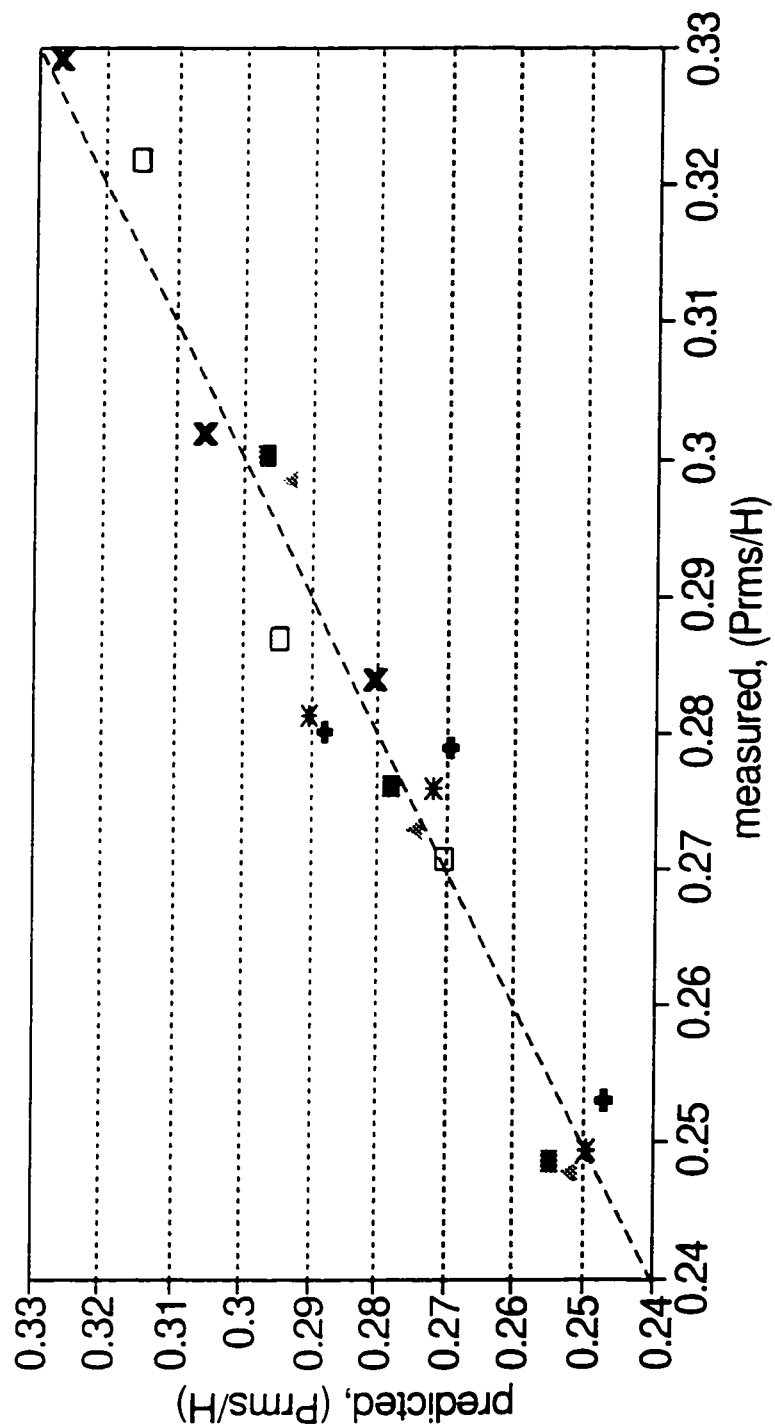
Comparison bet. measured pressure value
and prediction based on new formula



End sill slopes:

- 1V:5H ▲ 1V:6H * 1V:7H
- + 1V:8H ✕ 1V:1H □ 1V:2H

Fig. 6.6
Non-dimensional comparison between
measured and predicted pressure values



End sill slopes: ■ 1V:5H ▲ 1V:6H * 1V:7H
 + 1V:8H × 1V:1H □ 1V:2H

Fig. 6.7

Max. Scour Measurement for Various
Floods and End sills

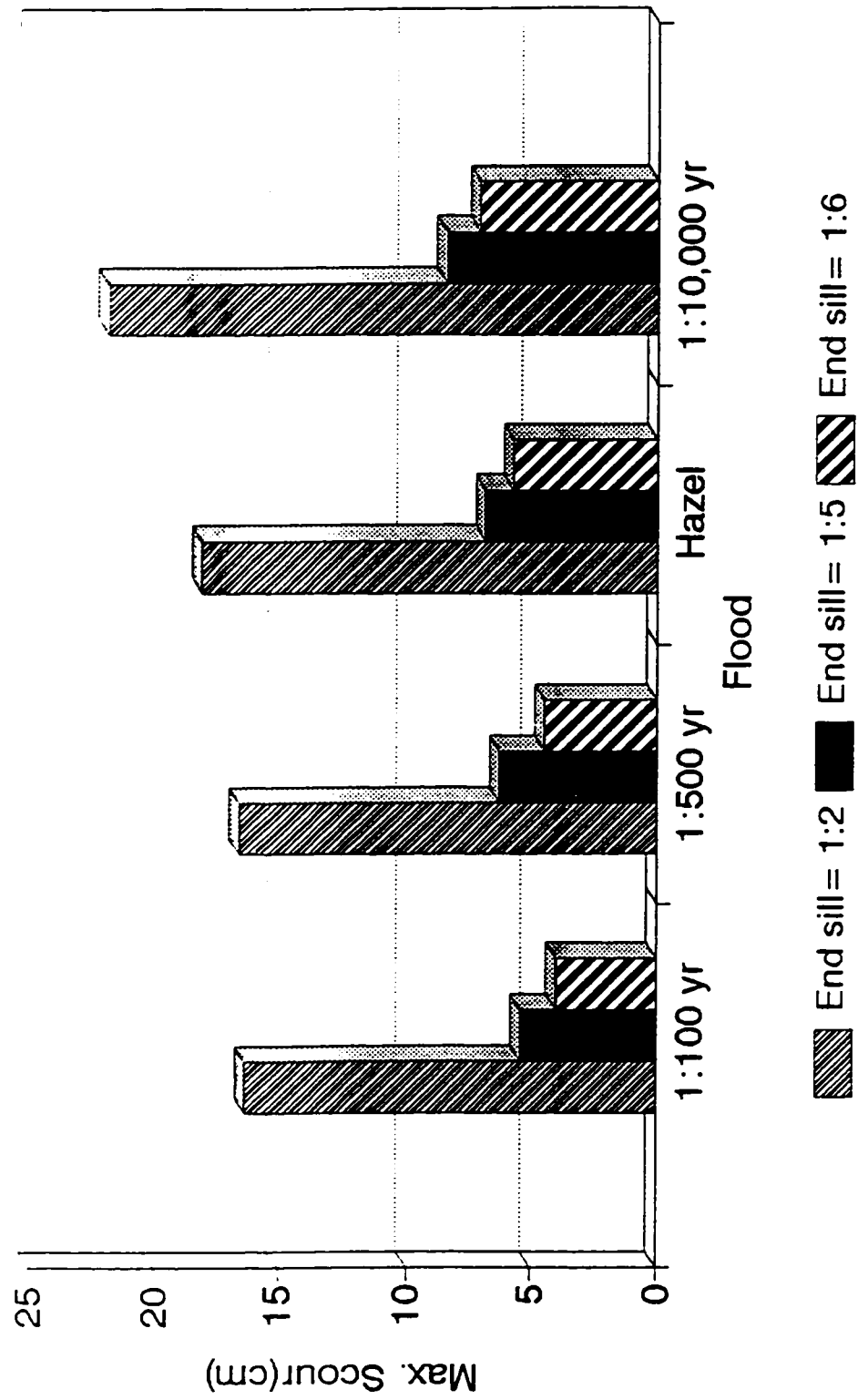


Fig. 6.8

Max. Scour Measurement for Various
Froude Numbers and End sills

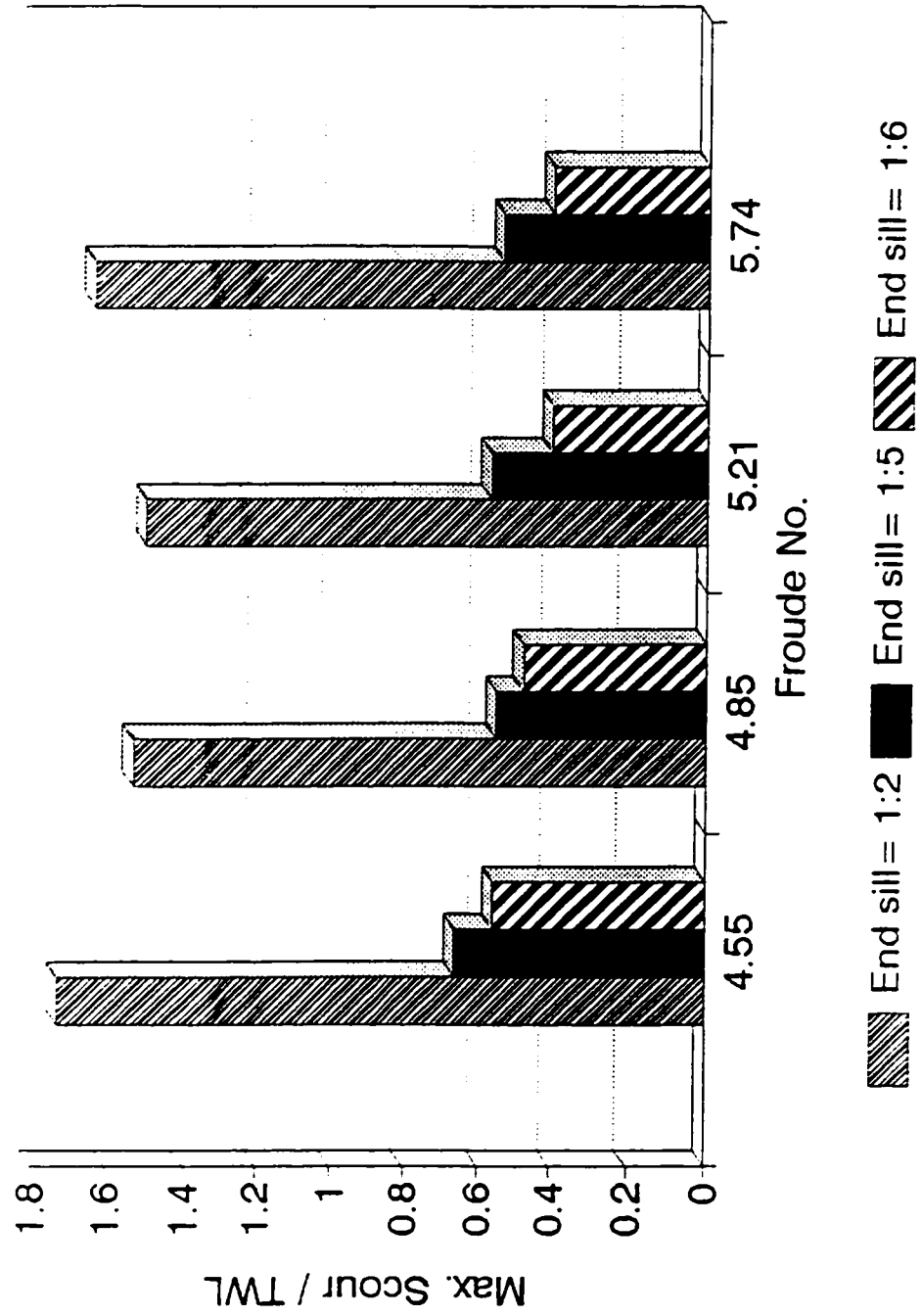


Fig. 6.9

Max. Scour Measurement for Hurricane
Hazel with Various Tail Water Levels

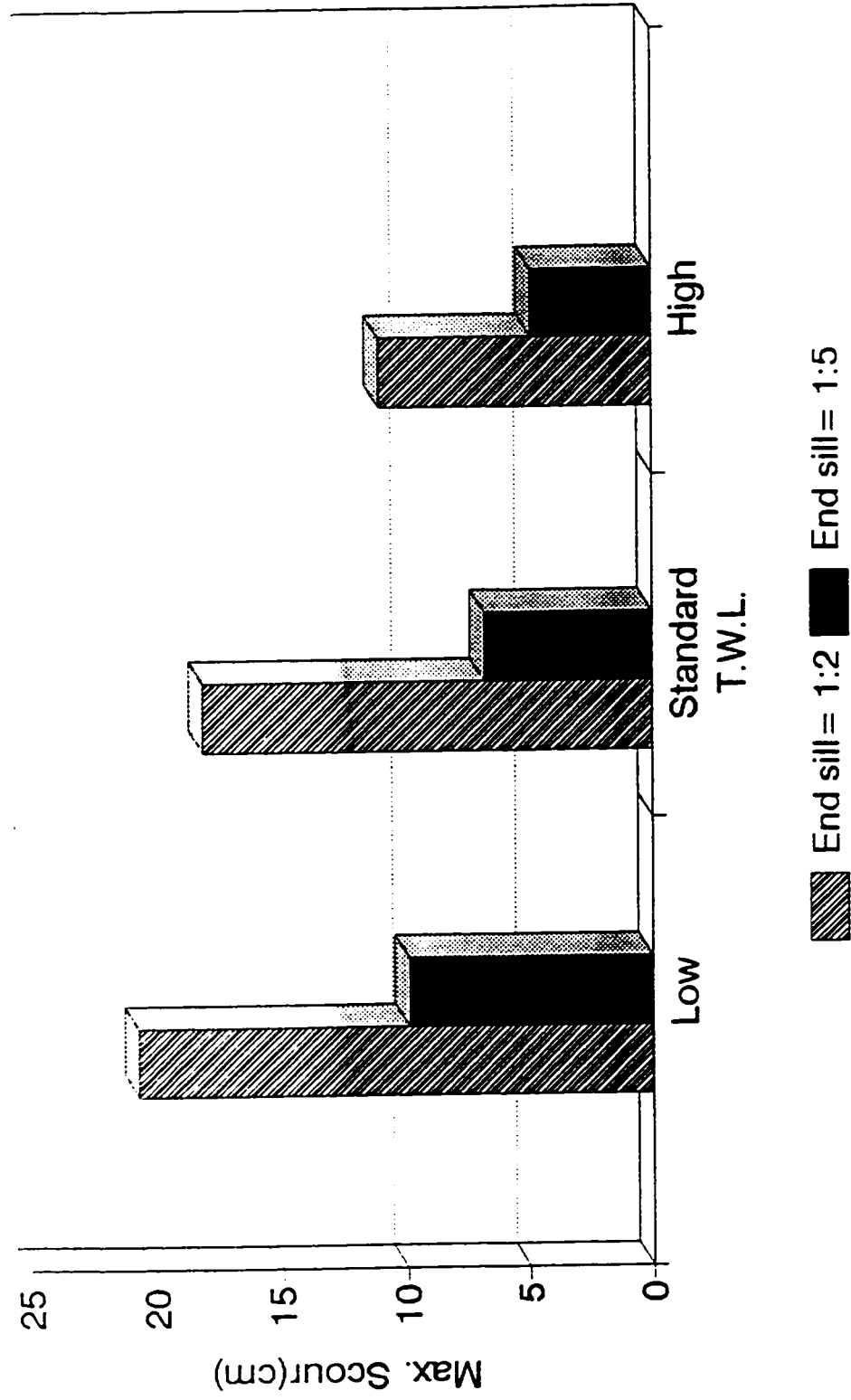
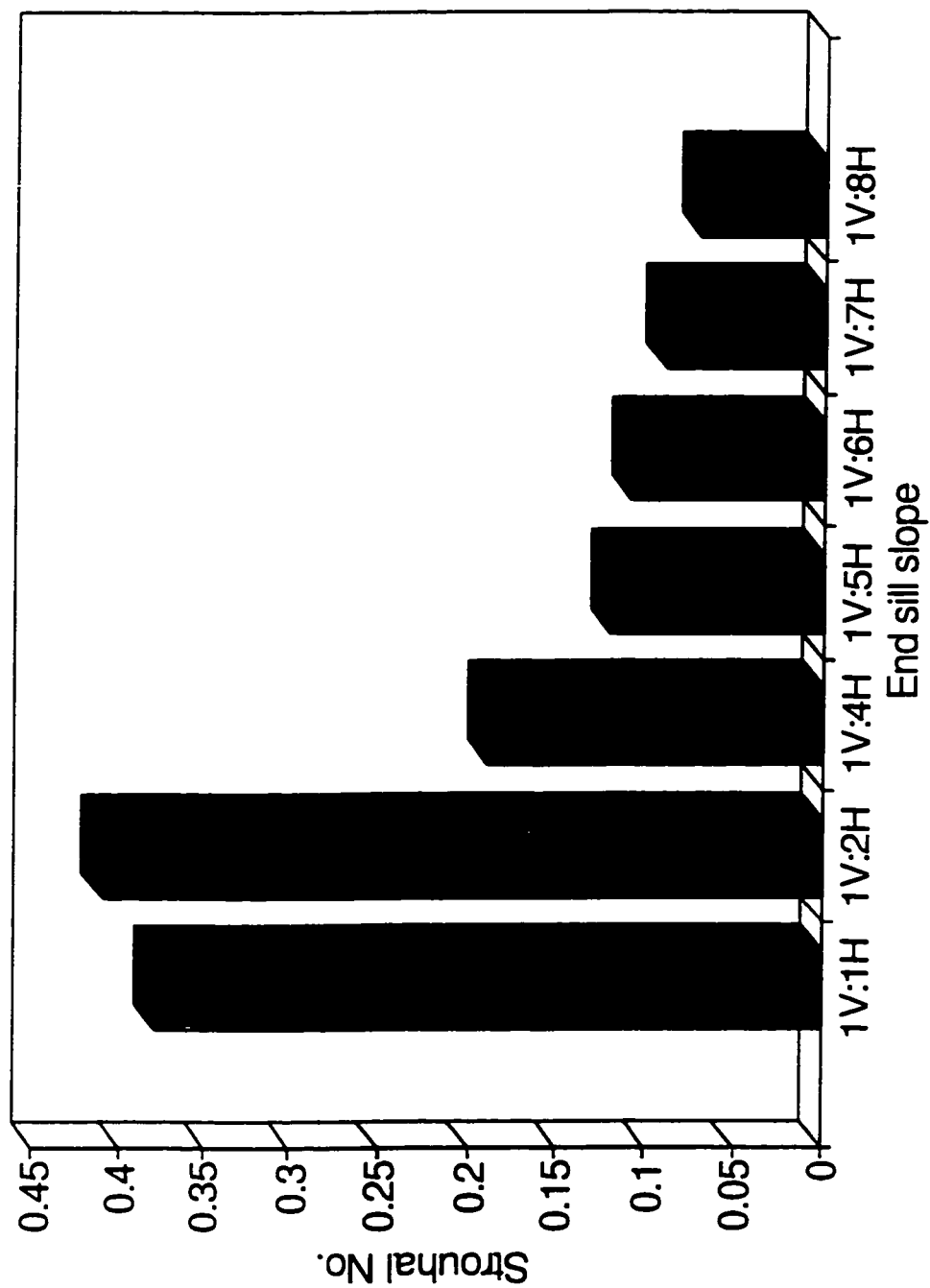


Fig. 6.10 Strouhal No. @ point 5 for various end sill slopes ; Hazel flood



APPENDIX C
LIST OF MATLAB PROGRAMS

```
% OBTAINING THE CONTOUR LINES AND 3-D SCOUR PROFILE
```

```
clear
```

```
delete(2)
```

```
delete(1)
```

```
figure(2)
```

```
clf
```

```
f5002n:
```

```
a=-2.54*b
```

```
z1=a(1:7,3);
```

```
z2=a(8:14,3);
```

```
z3=a(15:21,3);
```

```
z4=a(22:28,3);
```

```
z5=a(29:35,3);
```

```
z6=a(36:42,3);
```

```
z7=a(43:49,3);
```

```
z=[z1';z2';z3';z4';z5';z6';z7'];
```

```
xx=a(1:7,1)
```

```
x=xx*(-2.54)
```

```
yy=[a(1,2);a(8,2);a(15,2);a(22,2);a(29,2);a(36,2);a(43,2)]
```

```
y=yy/(-2.54)
```

```
xi=[x(1):x(7)]
```

```
yi=[y(1):y(7)]
```

```
zi=interp2(x,y,z,xi,yi,'bicubic');
```

```

figure(2)
axis([0 50 0 120 -20 0])
hold on
meshc(xi,yi,zi)
grid on
xlabel('x(cm)')
ylabel('y(cm)')
zlabel('scour (cm)')
title('Flood=1:500 yr:  End sill= 1:2:  Maximum Scour (34,78)=-16.5 cm ')
view(-50,50)
pause
delete(1)
figure(1)
clf
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clabel(c)
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xlabel('x(cm)')
ylabel('y(cm)')
figure(1)

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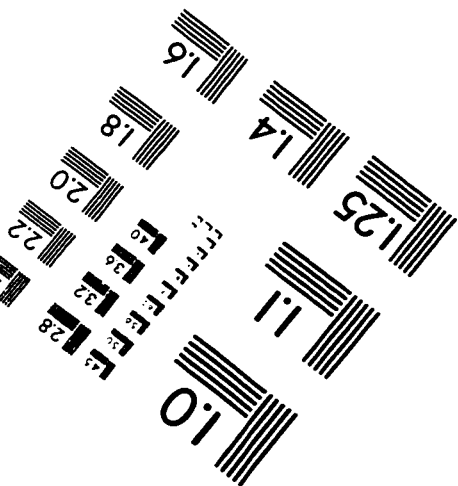
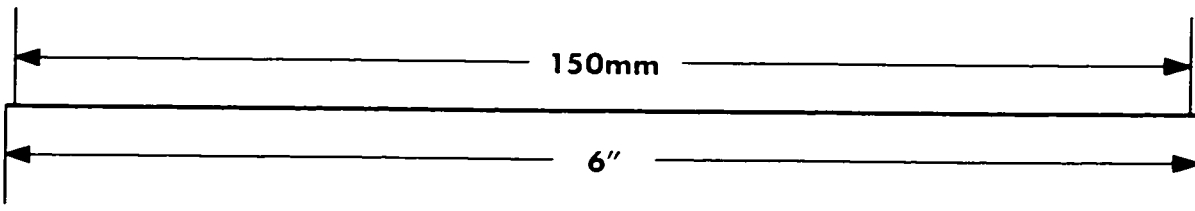
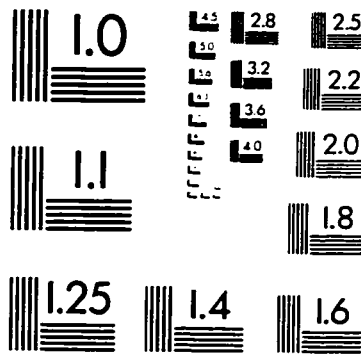
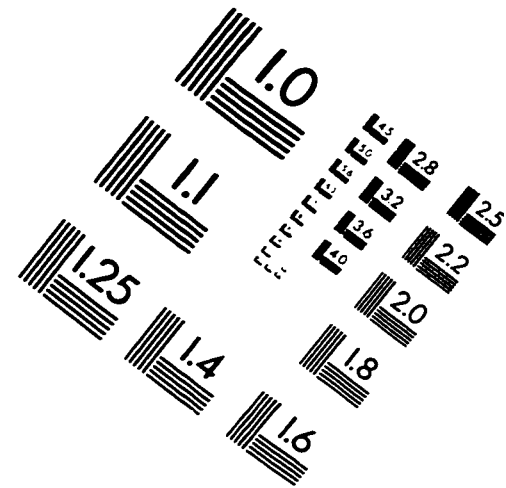
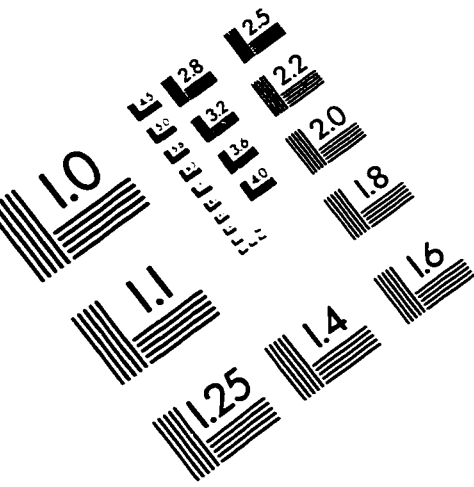
% OBTAINING POWER SPECTRAL DENSITY OF THE PRESSURE WAVE

```
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yprime=yt-ybar;  
y=yprime;  
TS=0.04;  
Y=fft(y,512);  
Pyy=Y.*conj(Y)/512;  
f=(25/512)*(0:255);  
figure(1)  
plot(f,Pyy(1:256))  
pause  
figure(2)  
clf  
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xlabel('Frequency (Hz)')
```

VITA AUCTORIS

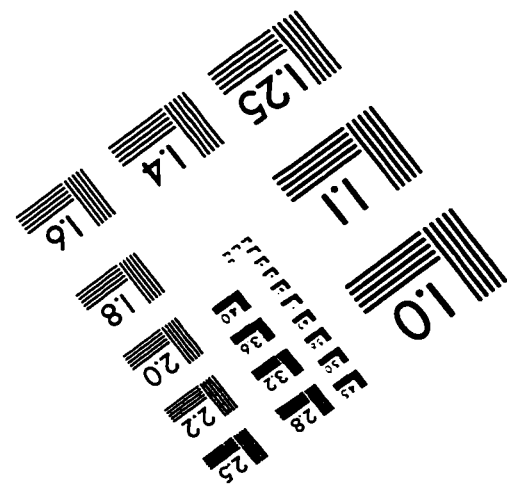
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**THE IMPACT OF FISCAL RESOURCES
ON
ORGANIZATIONAL STRUCTURES AND CULTURES:
A CASE STUDY**

by

Lynda Smith

**A thesis
submitted to the Faculty of Graduate Studies through
the Department of Sociology and Anthropology in partial
fulfilment of the requirements for the Degree of Master of
Arts at The University of Windsor**

Windsor, Ontario, Canada

1996

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ABSTRACT

This study examines how an organization's financial environment impacts its culture(s). Conducted at a mid size university, the research consisted of an archival review and open ended in depth interviews. Utilizing the cultural audit models of Schein (1992), Hofstede, Neuijen, Ohayv and Sanders (1990) and Sethia and Von Glinow (1985), two subcultures within the non academic, administrative division of the university were revealed: one within the non ancillary departments and another within the units operating as ancillaries. It was concluded that the differences in these two subcultures could be partially explained by how they obtained their required fiscal resources.

The ancillary units have traditionally operated in a market driven, turbulent fiscal environment. These units receive their operating funds through a combination of student fees and retail sales. In order to obtain these funds, these units have had little choice but to focus their attention on meeting the expectations of their clientele. Therefore, the tendency for these units to be entrepreneurial in spirit, pragmatic, results and customer service oriented, appears to result from their financial dependence on their customers. Unlike the ancillary units, the non ancillary departments receive their funding from government grants. These grants have historically provided the non ancillary departments with a very stable financial operating environment. This financial stability appears to have allowed these departments to develop a subculture that respects tradition, is employee oriented, and is primarily focused on the process involved in accomplishing

the task. But, due to recent governmental funding reductions, these non ancillary departments currently find themselves operating in a much less stable fiscal environment. This environmental change is also changing these departments' norms, values, and beliefs.

Although the results of this study establishes a link between an organization's fiscal environment and its culture, it must also be recognized that the environment is but one possible factor influencing an organization's culture. In order to gain a deeper understanding of an organization's culture, other environment factors plus the role of the institution's leaders and unions would need to be examined.

ACKNOWLEDGMENTS

Many people deserve thanks for making this work possible. I have the utmost respect and praise for my professor and chairperson, Dr. Adolf Ehrentraut. His shrewd scholarly advice, intellectual stimulation, frank criticism, and moral support have seen this work through to completion.

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Any errors or omissions are, of course, my responsibility.

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INTRODUCTION

The concept of culture has been linked to the study of organizations (Louis, 1985a; Pettigrew, 1979; Van Maanen, 1979). Although organizations are themselves imbedded within a wider cultural context, they develop cultural qualities unique to the organization (Louis, 1985a; Peters, 1978; Schein, 1992; Smircich, 1983a). For example, researchers studying educational institutions report that individual schools often possess their own distinct internal cultures (Clark, 1970; Rossman, Cobett, and Firestone, 1988; Wolcott, 1973). Not only do individual organizations often have distinct cultures, but there are often multiple subcultures within large complex organizations (Gregory, 1983; Schein, 1992; Smircich, 1983a; Wilkins, 1983). While some researchers have focused on describing an organization's internal culture (Baker, 1980; Jones, Moore, and Synder, 1988; Schein, 1992), others have suggested that in order to understand an organization's culture, it may be as important to look outside the organization to external environmental factors as to look inside at its components (Deal and Kennedy, 1982; Peters and Waterman, 1982; Whorton and Wothley, 1981). It has been argued that one cannot understand the structure or the culture of an organization without, first, understanding the external forces that shape internal arrangements (Pfeffer and Salancik, 1978; Scott, 1992). External forces and factors can consist of the role of the state and corresponding governmental regulations, labour market characteristics, market characteristics and other revenue sources (Aldrich, 1979). The most vital of these are fiscal resources, as all

organizations must generate sufficient financial resources in order to maintain themselves (Peters and Waterman, 1982; Scott, 1992). Organizations obtain these vital resources through a variety of methods: governments through a process of taxation, corporations and smaller businesses through the sale of their product(s) or service(s), and public institutions and social service agencies through governmental funding. Although most public institutions rely primarily on governmental funding, some, such as universities, supplement funding by obtaining additional fiscal resources through tuition and student fees, private donor contributions, and the sale of certain products and services. It has been argued that the need to acquire such items as fiscal resources causes organizations to become dependent on the source of these resources (Pfeffer, 1987; Pfeffer and Salancik, 1978). Furthermore, research has shown that both the source of the economic resources and the corresponding level of dependency to this source affects not only the structure of dependent organizations such as universities (Aiken, 1968; Aldrich, 1979), but also their organizational norms, values, and beliefs (Pfeffer, 1982; Koberg and Ungson, 1987). While the impact of external environmental factors such as economic resources has been examined within corporate cultures (Deal and Kennedy, 1982; Ouchi, 1981; Peters and Waterman, 1982) and public institutions (Aldrich, 1976; Alexander and Thomas, 1990), research within the education system on this subject is sparse.

This study examined the influence of fiscal resources on the culture of the Division of Administrative and Financial Services at the University of Windsor. The

Division of Administration and Finance is one of two divisions at the University of Windsor. The other division within the university is the academic division. Under the direction of the Vice President of Administration and Finance, the Division of Administration and Finance is subdivided into two spheres: one, known as ancillaries, is overseen by the director of university services and includes the University Bookstore, Medical and Health Services, CAW Student Centre, Residence Services, Duplicating and Word Processing Services, and the Department of Food and Hospitality Services. This sphere receives no government funding and therefore is mandated to be financially self-sufficient and is required to obtain all necessary fiscal resources through fees and the sale of products and services. The other sphere is currently supported with government funding and includes the departments of Computing Services, Financial Services (Accounts Receivables; Accounts Payable; Purchasing; Distribution Centre; Cashiers; Planning, Budgets, and Research Grants; and Payroll), Campus Police, Human Resources, Information Analysis, and Physical Plant (Housekeeping and Grounds; Maintenance; Facility Planning, Design and Construction; and the Energy Conversion Centre).

The purpose of this study was to not only describe the culture(s) within the division, but also to examine if, and how, different fiscal environments affected the division's departments' norms, values and beliefs. The Literature Review, Chapter I, contains a discussion of theories about organizational culture and its environment. In

addition, the chapter highlights various conceptual and methodological issues in considering how and where to look for culture in any organization. Chapter II, titled "Methodology," outlines how the theoretical concepts discussed in Chapter I were operationalized. Furthermore, this chapter discusses various reliability, validity and ethical issues including those involving research conducted by an "insider." Chapter III, titled "The Findings" describes the data collected during both the archival and interview phases of the study. The chapter begins with a review of the archival data, and then moves on to describe in detail the division's two subcultures which were uncovered during the interview phase of the study. The chapter concludes by discussing the relationship between the division's fiscal environment and these two sub cultures. The Conclusion, Chapter IV, not only provides a condensed summary of the study and its findings, but also discusses how the study's sole focus on the organization's fiscal environment limits the research findings of this study.

CHAPTER I

LITERATURE REVIEW

ORGANIZATIONAL CULTURE

Within the fields of anthropology and sociology, the concept of culture is defined as "the beliefs, values, behaviours, and material objects shared by a particular people" (Mocionis, Clarke, and Gerber, 1993:665). Culture includes "the total socially acquired life-style of a group of people including patterned, repetitive ways of thinking, feeling, and acting" (Harris, 1988:122) and "all the objects, artifacts, institutions, organizations, ideas, and beliefs that make up the symbolic and learned aspects of human society" (Tepperman and Rosenberg, 1991:37). Therefore, a group's culture can be characterized as a set of understandings or meanings shared by a group of people. The meanings are largely tacit among members, are clearly relevant to the particular group, and are distinctive to the group (Louis, 1980b). Since culture is distinctive to a group of individuals, research has also found that there are often subcultures within larger cultures (Gregory, 1983; Schein, 1992, Smircich, 1983a; Wilkins, 1983). A subculture is defined as "a group that shares some of the cultural elements of the larger society, but also has its own distinctive values, beliefs, norms, style, dress and behaviour patterns" (Tepperman and Rosenberg, 1991:37).

Theorists studying organizations have taken the concept of culture and applied it

to organizations. Although the term organizational culture did not formally enter the academic literature until Pettigrew's article in 1979, researchers as far back as 1938 had noted the importance of informal organizations and work-place norms. In 1938, Chester Barnard wrote that the informal organizations found within companies were often essential to the successful functioning of the formal corporation. Employee codes of conduct, as he referred to them, arose and ensured commitment, identity, coherence, and a sense of community. In 1939, Lewin, Lippitt and White introduced the term "social climates" in their famous article about boys groups. Building upon Lippitt, and White's initial concept, organizational researchers began to study if, and how, an institution's climate impacted the operation of the organization (Argyris, 1958; Fleishman, 1953; Litwin and Stringer, 1966; 1968; McGregor, 1960). Since Pettigrew's article in 1979, the focus of organizational research has shifted to that of organizational culture (Gregory, 1983; Louis, 1985a; Schein, 1992; Van Maanen, 1979). Within the business community, organizational culture has emerged in the past fifteen years as a topic of central concern to those who study organizations. Books such as Peters and Waterman's "In Search of Excellence" (1982), Ouchi's "Theory Z" (1983), Deal and Kennedy's "Corporate Culture" (1982), and Schein's "Organizational Culture and Leadership" (1992) have emerged as major works in the study of organizational culture. Thus the notion of organizational culture has a rich heritage.

Although higher education researchers have made some attempts to study campus

cultures, there still is a lack of cultural research in higher education overall (Dill, 1982). Initially, in the early 1960s the study of culture within post secondary institutions primarily concerned student cultures (Bushnell, 1960; Pace, 1962). Since the early 1970s Burton Clark has pioneered work on distinctive colleges and universities as cultures (1970), the role of belief and loyalty in post secondary organizations (1971), and organizational sagas as tools for institutional identity (1980). More recent work has included the study of academic cultures, the system of higher education as a culture (Becher, 1981; Bourdieu, 1977; Clark, 1984; Freedman, 1979; Gaff, 1971). Beginning in the late 1980s, there has been a recognition that there are usually a minimum of two distinct cultures within post secondary institutions--one called variously the collegial or community of scholars culture; the other, the administrative, managerial, or corporate culture (Bergquist, 1992; Kuh and Whitt, 1988; Schoenfeld, 1994; Tierney, 1988).

Since the introduction of organizational culture, a variety of definitions of the term organizational culture have been offered. Schwartz and Davis (1981:33) define culture as a "pattern of beliefs and expectations shared by the organization's members" that produces "norms that powerfully shape the behaviour of individuals and groups in the organization." Peters and Waterman (1982:75) regard culture as representing the shared values of an organization's members. Kilmann (1982:11) calls culture "the collective will of members" and argues that it indicates "what the corporation really wants or what really counts in order to get ahead" in the corporation. Tunstall (1983:1)

describes culture as "a general constellation of beliefs, mores, customs, values systems, behavioral norms, and ways of doing business that are unique to each corporation."

Sethia and Von Glinow (1985:403) define organizational culture as the "shared and relatively enduring pattern of basic values, beliefs, and assumptions in an organization."

Schein (1992:12) refers to culture as "a pattern of shared assumptions that the group has learned as it solved its problems of external adaptation and internal integration."

Hofstede, Neuijen, Ohayv and Sanders (1990:286) note that although there is no consensus about its definition, most researchers agree that the constructs of an organization's culture include the following characteristics: "it is (1) holistic, (2) historically determined, (3) related to anthropological concepts, (4) socially constructed, (5) soft, and (6) difficult to change." Although the definitions differ slightly in emphasis, all suggest that culture is expressed in patterns of behaviour that are based on shared meanings and beliefs about those behaviours.

The various definitions of organizational culture have arisen due to two primary reasons. One is the theorist's point of view. Research on organizational culture is being conducted by researchers from various disciplines which include management, communication, sociology, psychology, and anthropology. The second, and according to Alvesson (1994:1), more important reason, is the philosophical and meta-theoretical assumptions guiding the approaches to organizational cultural studies. "The most important distinction is between an objectivist-functionalist view of social reality and

social science and a subjectivist, interpretive approach."

The functionalist perspective is derived from classical anthropology and organizational systems theory and raises questions of how social systems continue to survive and adapt (Parsons, 1951). Functionalism perceives organizations as natural systems, which primarily pursue organizational survival by carrying out necessary functions (Scott, 1992). Organizational culture is viewed according to its contribution to organizational survival. While functionalism focuses on the processes by which values and assumptions become shared among organizational members and the formation of group identity, it does not reject that organizational subcultures may develop due to specific circumstances within the organization.

The subjective, interpretative approach focuses on the symbol. The symbolist orientation perceives organizations as human systems which express patterns of symbolic actions (Pondy, Frost, Morgan and Dandridge, 1983; Geertz, 1973; Frost, Moore, Louis, Lundberg and Martin, 1991). Actions do not take place according to mechanical cause-effect relations or the need for the organization's survival, but rather, due to social constructs regarding the meanings of various acts. "The central message of symbolism is that humans act, organisms behave" (Pondy, Louis, Frost, Morgan and Dandridge, 1983:22).

Regardless of the researcher's field or discipline, and its philosophical and meta-theoretical assumptions, the growth in the study of organizational culture has been "a

response to frustration over the dominance of positivistic approaches in American organization theory" (Alvesson, 1994:5). The cultural perspective reveals many aspects of organizational life missed by traditional quantitative organization research.

"Traditional organization research, often objectivist and abstract, has proved incapable of providing deep, rich, and realistic pictures of the objects of study, and the dominance of quantitative, hypothesis-testing studies has discouraged alternative approaches" (Alvesson, 1994:3). Looking exclusively at organizations through the lens of the abstracted, technical and functional categories has simplified the complexities and diversity of organizational life. Organizational cultural research offers a new perspective to studies of organizations as it tries to apprehend and analyze larger chunks of reality and preserve the context in which it occurs as an integral part of that reality. Pettigrew (1979) noted that culture is a concept that highlights organizing rather than organization. As Weick (1969:1) notes, "organizations are processes which create, maintain, and dissolve social collectivities, that these processes constitute the work of organizing, and that the ways in which these processes are continuously executed are the organization." Thus, culture is both product and process, the shaper of human interaction and the outcome of it, continually created and recreated by people's ongoing interactions. Therefore, organizational culture research brings to light the values and ways of doing things in an organization long taken for granted by its members. Seldom written down or consciously examined, these precepts and practices guide people's actions, inform

decision making, and aid or hinder organizational effectiveness (Schein, 1992). In effect, cultural research tries to encompass more of the complexities and messiness of real life in organizations by developing explanations of human actions taking into account the meanings members assign to their acts and also the manner in which their everyday world is socially constructed (Silverman, 1971). Social construction of reality theory assumes that all reality is socially constructed and that there is no reality that is not socially interpreted (Berger and Luckman, 1966).

Therefore, in order for a culture to develop, people need to spend time together, to interact and share with one another common uncertainties and some ways of coping with them. Researchers working within the symbolic paradigm have suggested that by studying the content and form of such activities as office jokes, coffee breaks, the way people dress, the functions or consequences of the corporation's Christmas party, seating arrangements at meetings, staff layoffs etc. all illuminate an organization's particular culture (Dandridge, 1983; Deal and Kennedy, 1982; Martin, 1990; Pettigrew, 1979; and Trice and Beyer, 1984). Others disagree, arguing that studying organizations at this level only provides an introductory understanding of an organization's culture (Alvesson, 1994; Schein, 1992; Hofstede, Neuijen, Ohayv and Sanders, 1990).

The functionalist perspective as outlined by Schein (1992) states that in order to survive, any organization must resolve two fundamental problems: (1) survival in and adaptation to the external environment; (2) integration of its internal processes to ensure

the capacity to continue to survive and adapt (Schein, 1992:51). An organization's culture is the product of the group's collective process of learning and problem solving via the organization's necessary adaptation to external conditions. Integration occurs as the organization's members develop and learn values and assumptions according to this problem-solving. Schein (1992) argues that office jokes, coffee breaks, firings, seat arrangements and the like are the artifacts of the organizations. While artifacts are important, they are but surface manifestations of the culture. While Schein's cultural audit model examines an organization's artifacts, he posits that in order to understand an organization's culture, the researcher must uncover the organization's basic assumptions.

Schein (1992) analyses an organization's culture from three different analytical levels: (1) artifacts, (2) values, and (3) basic assumptions. The basic assumptions are the deeper, fundamental features of the organization, where as values and artifacts are the organizational culture's more conscious, surface manifestations, operating at a greater levels of awareness. In Schein's work, artifacts are defined in the following manner:

At the surface we have the level of artifacts, which includes all the phenomena that one sees, hears, and feels when one encounters a new group with an unfamiliar culture. Artifacts would include the visible products of the group such as the architecture of its physical environments, its style as embodied in clothing, manners of address, emotional displays, myths and stories told about the organization, published lists of values, observable rituals and ceremonies and so on...this level also includes the visible behaviour of the group and the organizational processes into which such behaviour is made routine, written and spoken language, artistic production and the overt behaviour of its members (Schein, 1992:17).

Artifacts are characterized as "visible but hard to decipher" (Schein, 1992:17).

Schein argues that since an organization's culture's artifacts often create a multiple and confusing surface, there is a considerable need to systematize the artifact level, both in order to avoid losing oneself in detail, and to avoid over generalized labelling of the cultural surface manifestations.

Whereas the study of artifacts requires immediate observation, values are seen by Schein as:

All group learning ultimately reflects someone's original values, someone's sense of what ought to be as distinct from what is. When a group is first created or when it faces a new task, issue, or problem, the first solution proposed to deal with it reflects some individual's own assumptions about what is right and what is wrong, what will work or not work... Therefore, whatever is proposed can only have the status of a value from the point of view of the group...until the group has taken some joint action and its members have together observed the outcome of that action, there is not as yet a shared basis from determining what is factual and real (Schein, 1992:19).

Thus the values of the organizational culture have a normative character. They consist of what the organization's members say during and about situations, and not necessarily what they do in situations where these values ought to be operating. Schein notes how organizational values formulated in a company mission statement may not actually be followed. Schein states that while the analysis of the "values" level of his model results in a listing of values, the list seldom leads directly to the basic assumptions:

Even after we have listed and articulated the major values of an organization, we still may feel that we are dealing only with a list that does not quite hang together. Often such lists of values are

not patterned, sometimes they are even mutually contradictory, sometimes they are incongruent with observed behaviour" (Schein, 1992:17).

And this notion is further elaborated:

Large areas of behaviour are often left unexplained, leaving us with a feeling that we understand a piece of the culture but still do not have the culture as such in hand. To get at that deeper level of understanding, to decipher the pattern, and to predict future behaviour correctly, we have to understand more fully the category of basic assumptions (Schein, 1992:21).

The basic assumptions, however, are the invisible and implicit assumptions that actually guide behaviour, that tell group members how to perceive, think about, and feel about things. Schein (1992:22) notes:

Basic assumptions, in the sense in which I want to define that concept, have become so taken for granted that one finds little variation within a cultural unit. In fact, if a basic assumption is strongly held in a group, members will find behaviour based on any other premise inconceivable (Schein, 1992:21-22).

The special patterns of basic assumptions which the organization's members have evolved, create the culture's core. Therefore, the ultimate goal in devising an analytical classification of artifacts and values is to decipher the pattern of the basic assumptions. In contrast to artifacts and values, the pattern of basic assumptions is not linked to the culture's specific function areas. The basic assumptions create their own paradigm which generates a coherence between the apparently isolated and confusing artifacts and values. According to Schein, the deeper dimensions around which basic assumptions are formed are based on the organization's shared understanding of:

1. The Nature of Reality and Truth

- * How does the organization define what is real and what is not?
- * How is truth ultimately to be determined?
- * Where is truth revealed or discovered?

2. The Nature of Time

- * How is time defined and measured?
- * What importance does time have?

3. The Nature of Space

- * How is space allocated and owned?
- * What is the symbolic meaning of space around the person?
- * Does the role of space define aspects of relationships within the organization?

4. The Nature of Human Nature

- * What are the organization's shared assumptions regarding human nature and what attributes are considered intrinsic or ultimate?

5. The Nature of Human Activity

- * What are the shared assumptions that define what is the right thing for human beings to do in relating to their environments on the basis of the foregoing assumptions of reality and the nature of human nature?

6. The Nature of Human Relationships

* What are the shared assumptions that define what is the ultimate right way for people to relate to each other, to resolve conflict and to distribute power?

According to Schein, an understanding of an organization's culture(s) is achieved only when these basic assumptions have been discovered. For example, an organization's mission, primary tasks, and goals reflect basic assumptions about the nature of human activity and the ultimate relationship between the organization and its environment. The means chosen to achieve the organization's goals will reflect assumptions about truth, time, space, and human relationships in the sense that the kind of organization that is designed will automatically reflect those deeper assumptions. Similarly, the measurement system and assumptions about how to take corrective action will reflect assumptions about the nature of truth and the appropriate psychological contract for employees. Status systems, reward systems, rules for intimacy and for the channelling of aggression all reflect deeper assumptions about the nature of human nature, human activity, and human relationships.

Schein's model, which was first introduced in his 1983 working paper "Organizational Culture: A Dynamic Model," has now been used by a variety of consultants and other researchers conducting organizational cultural studies. Pedersen and Sorensen (1989) used the model to study three different organizations and then reviewed the model's strength's and weaknesses, Schultz (1994) to study a public bureaucracy and Sathe (1985) to understand how an organization's culture can be

changed.

Although Schein's analytical model is one of the most widely quoted references in organizational cultural research, there are those who question "whether this is a good model for understanding organizational culture" (Alvesson, 1994:83). Upon completion of their research using Schein's model, Pedersen and Sorensen (1989:118) note that while "Schein's culture model is an important contribution to culture analysis of organizations it does not get to the essence of culture." Schultz (1994:157) also notes the "difficulties of approaching the level of basic assumptions" in the results of his study.

To resolve these noted difficulties, other researchers have developed alternative models. Sethia and Von Glinow (1985) note how an organization's reward system influences its culture directly by selectively reinforcing certain beliefs and values. Therefore according to Sethia and Von Glinow, an examination of an organization's reward system will highlight an organization's basic assumptions regarding what is time, space, reality, truth, human nature and how people are to behave and relate to one another within the workplace. They posit that the major underpinnings of an organization's culture are provided by its human resource orientation which they define as the level of concern for people and the level of concern for people's performance in the organization. Concern for people refers to the organization's commitment to the well-being of its members and respect for their dignity. Concern for performance refers to the organization's expectation that its members will give their best on their jobs and make full

use of their talents.

According to their model, a low or high level of concern for people in conjunction with a low or high level of concern for performance suggests four generic types of organizational culture that are grounded in the organization's human resource orientation. These four cultures are the Apathetic culture, the Caring culture, the Exacting culture, and the Integrative culture. The Apathetic culture exhibits little concern for people and indifference to their performance. The Caring culture exhibits high concern for people but relatively undemanding performance expectations. The Exacting culture exhibits little sensitivity to people but has extremely demanding performance expectations. The Integrative culture exhibits high concern for people as well as high performance expectations. According to Sethia and Von Glinow each of these cultures is compatible only with specific types of reward systems (Appendix 1).

Based on their utilization of their model in numerous corporations, Sethia and Von Glinow provide snapshot views of organizations with Apathetic, Caring, Exacting, and Integrative cultures. An example of an Apathetic culture is an organization which holds the assumption that its success is governed primarily by vested interests or political expediencies. Due to this fundamental organizational belief, the company's reward system is often poor to average as employees are not viewed as an important to the organization's success. The Caring culture outlines an organization which holds a basic paternalistic assumption towards its employees. Although these organizations care about

their employees, they believe that employees cannot handle challenging or difficult tasks and therefore should have limited responsibilities. Caring cultures usually utilize a grid reward system in which "everybody at a certain grade can expect about the same salary and the same increase" (Sethia and Von Glinow, 1985:412). The grid reward system supports the Caring culture's fundamental assumption that people are all basically equal. An organization with an Exacting culture is based on a reward system of bonuses and other performance-based reward incentives, which are heavily dependent on performance and results. Organizations with this type of reward system often view their world as competitive, and value employees who are results oriented. These organizations' reward systems often support individual risk taking and initiative. While organizations with an Integrative culture also believe that employees are capable of making significant contributions to the performance of the organization, these organizations value group performance over that of individual performance. Because performance is a core value in this culture, significant rewards are still contingent on performance, but unlike the Exacting culture, emphasis here usually is on group or company success rather than on individual success.

Schein's model has also been criticized for failing to give researchers the tools in which to understand an organization's culture within an environmental context (Alvesson, 1994). It has been argued that neither organizations nor their cultures exist in a vacuum. Indeed, it has been said that "all organizations engage in activities which have as their

logical conclusion, adjustment to the external environmental conditions" (Hawley, 1950:3). Therefore, analysts suggest that to understand the operation of its culture, it may be as important to look outside the organization at its environment as to look inside the company at its components (Khandwalla, 1977; Schein, 1992; Scott, 1992). Scott (1992:123) states that "the characteristics of the organization's structure are strongly affected by the organization's environment and that external forces shape internal arrangements..." Thus, if the environment affects internal structures and processes of organizations, it is essential to look both inside and outside the organization in order to fully understand an organization's culture (Deal and Kennedy, 1982; Whorton and Wothley, 1981).

Schein's basic hypothesis is that an organization's members develop cultures and pass them on to new group members as the correct way to perceive, think, and feel about themselves and the environment. While Schein theoretically supports the concept that an organization's culture is the result of its members adapting to the external environment and that culture is not generated in a socio-economic vacuum, Alvesson questions if Schein's model truly examines the role of an organization's sociomaterial reality. While Alvesson acknowledges that Schein's model does uncover the values, beliefs, and core assumptions held by the members of an organization, he questions if the model truly examines the external environmental factors involved. Alvesson (1994:83) notes "groups are basically interested in themselves, not in the environment" and criticizes Schein's

model for placing too much emphasis on emotional issues. Alvesson's central criticism of Schein's model is that his model fails to examine how an organization's cultural manifestations, including its basic assumptions are "affected by, anchored in and closely related to sociomaterial reality" (Alvesson, 1994:67). Therefore, according to Alvesson, in order to fully understand an organization's culture, one must examine the "tasks of a work group" (Alvesson, 1994:67). Unlike Schein's model, the cultural audit model of Hofstede, Neuijen, Ohayv, and Sanders (1990:286) emphasizes the examination of an organization's tasks, structure, and control characteristics as a means of understanding an organization's culture(s).

Based on Hofstede's previous research (Hofstede, 1980, 1983a, 1983b, 1983c, 1983d) that examined the cultural differences of IBM's various divisions among sixty-four countries, the researchers (1990:305) developed a checklist of six dimensions that could be used as "a checklist for practical culture differences" between organizations or departments within organizations. This checklist of dimensions was then used to study twenty various departments within ten separate organizations with the following results:

1. Process-Oriented versus Results Oriented

This dimension examined an organization to determine if its culture was more means (process) oriented or more goal (results) oriented.

If an operation was labour-intensive, it tended to breed a results-oriented culture.

Flatter organizations (larger span of control for the unit top manager) were also found to be more results oriented.

Both specialization and formalization were negatively correlated with results orientation. The more specialized and/or more formalize units tended to be more process oriented.

2. Employee-Oriented versus Job-Oriented

This dimension compared a concern for people (employee-oriented) to a concern for getting the job done (job-oriented).

Results of the research showed that when managers' performances were evaluated on profits and other financial performance measures, the unit tended to be more job-oriented. When managers were evaluated against a budget, the unit tended to be more employee-oriented. The research results indicated that operating against external standards (profits in a market) breeds a less benevolent culture than operating against internal standards (a budget).

3. Parochial versus Professional

This dimension contrasted units whose employees derived their identity largely from the organization (parochial), to units in which people identified with their type of job (professional).

Units with a traditional technology tended to score as parochial whereas high-tech units as professional. Professional cultures also tended to have smaller labour union membership, their managers had a higher average education level and age, and they scored higher on specialization.

4. Open System versus Closed System

Communication climates in the units studied seemed to have been formed historically. Some organizations had developed a tradition of being closed, while other ones displayed remarkable openness.

The percentage of women among managers and the presence of at least one woman in the top management team appeared to be somewhat correlated with openness. The results also indicated that the higher the formalization of the unit, the more the unit's culture was closed.

5. Loose Control versus Tight Control

Units delivering precision or risky products or services (such as pharmaceutical products or monetary transactions) tended to score as tight on control, those with innovative or unpredictable activities tended to score as loose.

Units in which top management claimed to spend a relatively large part of their time reading and writing reports and memos from inside the organization, also reported

tighter controls. In addition, material-intensive units tended to have more tightly controlled cultures.

6. Normative versus Pragmatic

This dimension dealt with the popular notion of "customer orientation."

Pragmatic units were market driven while normative units perceived their work task as the implementation of inviolable rules.

Service units and those operating in competitive markets tended to score as pragmatic, while units involved in the implementation of laws and operating under a monopoly tended to score as normative.

To summarize, although there are numerous definitions of organizational culture, all suggest that an organization's culture is expressed in patterns of behaviour that are based on the organization's members' shared meanings and beliefs about those behaviours. Since these shared meanings and beliefs about behaviour are the result of a work group learning to collectively resolve problems of external adaptation and internal integration, there is a tendency for large complex organizations to develop subcultures. Building on earlier organizational climate research and anthropological methodologies, researchers have developed a variety of models in which to study an organization's culture and subcultures. Due to the researchers' different points of view, organizational research is conducted from either an objective-functionalist or a subjectivist, interpretive

point of view. Although many cultural audit models have now been developed, Schein's (1983) functionalist cultural audit model has received the most attention. Schein's three part model, focuses on uncovering an organization's basic assumptions.

As previously noted, analysts studying organizational cultures have concluded that an organization's environment impacts its culture (Deal and Kennedy, 1982; Peters and Waterman, 1982; Whorton and Wothley, 1981). More specifically, based on Hofstede's previous research on IBM's various facilities in sixty-four countries (Hofstede, 1980, 1983a, 1983b, 1983c, 1983d), Hofstede et al. (1990) posited that differences in an organization's culture(s) could be explained, at least in part, by the differences in each unit's external environments. In addition, although Schein's cultural audit model does not directly examine the impact of the organization's environment on its culture, Schein emphasizes the importance of environment in his definition of culture which includes the phrase "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation..." (Schein, 1992:12). Therefore it can be argued that, in order to gain an understanding of an organization's culture, there needs to be an examination of the organization's environment.

ENVIRONMENT

Organizational researchers use the term organizational environment to refer to everything that surrounds organizations but is not part of them: "Organizational

environment is defined as all elements that exist outside the boundary of the organization and have the potential to affect all or part of the organization" (Daft, 1989:45). The general purpose of drawing a distinction between organizations and their environments is to be able to consider organizations as entities in their own right and to separate those social processes that are supposedly under organizational control from those that are not (Aldrich and Pfeffer, 1976).

Analysts believe that organizations are open systems that cannot operate independently of their external environments. As one analyst put it: "...organizations are not fortresses, impervious to the buffeting or the blessings of their environments" (Scott, 1992:123). Thus, the organization is viewed in a symbiotic relationship with the environment, taking from it the inputs needed for its operations, and exporting to it the outputs of goods and services needed by the environment. Therefore, in order to achieve its goals, organizations must, in varying degrees, depend upon the environment for a variety of resources such as personnel, information, monetary, and physical resources, clients, customers, or markets (Hoy and Miskel, 1991; Khandwalla, 1977; Scott, 1992).

This symbiotic relationship has been the focus of numerous researchers' work over the years (Hannon and Freeman, 1989; Katz and Kahn, 1978; Lawrence and Lorsch, 1967; Pfeffer and Salancik, 1978; Scott, 1992; Thompson, 1967). Thompson (1967) was among the first organization theorists to recognize the importance of the environment for the structure and performance of organizations. Lawrence and Lorsch's (1967)

contingency model supported Thompson's theory as it outlined how it was the organizations' adaptation to different types of environments that created various types of organizational structures. Furthermore, they noted how an individual unit's type within an organization could differentiate from that of other units' when one unit's environment changed. Pfeffer and Salancik's (1978) resource dependency theory examined the environment in terms of relative scarcity of resources. The fundamental assumption of resource dependency theory is that organizations are unable internally to generate all the resources and functions to maintain themselves and are dependent on the environment for resources. As a consequence, organizations must enter into exchanges with environmental elements that can supply needed resources which can include, for example, trained personnel, raw materials, favourable government regulations, and of course, money. Problems arise not merely because organizations are dependent on their environment, but because this environment is not static--it changes. As environments change, the availability of an organization's resources often changes with it. Thus, when an organization's environment changes, the organization faces the prospect either of not surviving or of changing its activities in response to the changing environment (Pfeffer and Salancik, 1978). Furthermore, Katz and Kahn (1978) noted that under conditions of scarcity, competition for resources among subgroups can take the form of a zero-sum game with each subgroup caring more about its share of finite resources than the overall welfare of the organization. More recently, Hannan and Freeman (1989) have explicitly

linked organizational forms with environmental dependencies. Scott (1992), after reviewing the literature on organizations and their environments, notes: "There is little doubt that environments profoundly shape organizations--their structures, their performances, their outcomes" (Scott, 1992:145).

The theory of resource dependency has been applied in the field of education (Boyd and Crowson, 1981). Researchers studying how urban culture affects urban universities, note that urban universities tend to modify their programs, structure, and overall organizational culture in response to their external environments (Blizek and Simpson, 1978). More specifically, it is now accepted that the dependence of schools on the environment for fiscal resources affects the internal structures and processes within educational facilities (Freeman, 1979; Hardy, 1989; Hoy and Miskel, 1991).

The relationship among external environment, organizational structure, and organizational culture can be further seen in the comparison of organizations in stable and unstable environments. Analysts have found that the structures of organizations that existed in rapidly changing and dynamic environments are significantly different from those that existed in stable environments. When the environment is stable, the internal structures and cultures tend to be mechanistic, that is, characterized by formal rules and centralized decision making. Relying heavily on programmed behaviours, mechanistic organizations perform routine tasks effectively and efficiently, but respond relatively slowly to unfamiliar events. In highly unstable environments, the internal structures and

culture tends to be more organic, that is, informal, flexible, and adaptive. The emphasis in organic organizations is on informal agreements about rules, decentralized decision making, collegial relations, open communication, and influence based on expertise (Burns and Stalker, 1961; Daft, 1983; Duncan, 1979; Miller, 1992; Mintzberg, 1979). Studies of free schools, food cooperatives, and law collectives, for example, have shown that organizations change in response to environmental changes. These organizations initially had an organic internal structure but gradually took on bureaucratic features as an adaptation to changing environmental conditions from unstable to stable external environments. As external governmental funding became more stable for these organizations, their dependence on external funding increased and their organizational structure and culture became more mechanistic (Newman, 1980). Thus, these organizations changed their internal structures and cultures to reflect their changing external environments.

In light of the preceding discussion, it follows that to fully understand an organization's structure and culture, one must also examine the organization's external environment. A study conducted by William Tierney (1988) did exactly that. Tierney's study examined how the culture of Family State College was directly impacted by its environment. Founded in 1894, Family State College existed in a relatively stable environment as it was a career-oriented college for the working class in nearby towns. But during the 1980s, Family State College, like many colleges in the United States,

suddenly faced an unstable environment due to a reduction in government funding levels. Tierney examined how the college adapted to this fiscal resource change and notes how this reduction in funding changed the college's culture. Tierney outlines how the college moved from a having a reputation of being impersonal and bureaucratic to one of providing students with the "personal touch of private colleges" (1988:12). Tierney argues that the institution's shift to a customer service culture is an example of how the school adapted to the changes in its environment. He notes that due to the government funding reductions, the college, for the first time in its history, had to be concerned with attracting and retaining students, as more students meant increased tuition. The institution used this increased tuition to offset its reduction in government grants.

The review of the literature has clearly shown that organizations and their environments are involved in a symbiotic relationship. Furthermore, since organizations are unable to generate all the resources internally to maintain themselves, they are dependent upon the environment for a variety of needed resources. Of these resources, money is of the utmost importance. It is now accepted that the dependence of an organization on the environment for its fiscal resources directly affects its internal structures and processes.

SUMMARY OF THE LITERATURE REVIEW

As the literature has shown, an organization's culture is the invisible force behind

the tangibles and observables in an organization. Culture is to the organization what personality is to the individual--a hidden, yet unifying theme that provides meaning, direction, and mobilization. Like individual personalities, no two organizations have exactly the same culture. Operationally, culture is defined as the shared beliefs, values, and norms of an organization's members. Research has shown that these shared beliefs, values, and norms emerge as the organization's members struggle with the uncertainties of their organization's environment. The literature outlines not only the importance of an organization's economic environment in the development of its culture, but also how economic uncertainties continue to influence it.

CHAPTER II

METHODOLOGY

DESIGNING AND ANALYZING THE STUDY

Studies of organizational culture have relied almost exclusively on qualitative methods, such as ethnographic observation or in-depth, open-ended interviewing, as such methods allow for ambiguities, contradictions, and paradoxes to be explored. Given that culture has been defined in terms of a socially constructed reality, qualitative methods are usually considered epistemologically congruent with cultural research (Martin and Siehl, 1983). The aim of qualitative research is to discover a pattern of important assumptions that help "make sense" of the cultural manifestations, and the challenge is to ensure that the "making sense" is from the view of the "natives," those whose culture is being deciphered (Geertz, 1973; Swartz and Jordan, 1980). To understand culture, one must be immersed in the complex clustering of symbols people use to give meaning to their world. In this view, Geertz (1973:5) asserts:

Believing with Max Weber that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning. It is explication I am after, construing social expressions on their surface enigmatical.

As outlined in the literature review, there is still a good deal of conceptual confusion and variation with the field of organizational research. The difficulties consist

of formulating and describing what the researcher actually means by the word culture in terms that can be understood by others without being vague or all inclusive. Due to these difficulties, the decision was made to utilize a model that had been previously operationalized in other studies of cultures within organizations. The decision to employ three different cultural audit models for this study evolved during the review of the literature. Although Schein's cultural audit model (1983) has been widely utilized by both researchers and consultants, they have found it difficult to operationalize. Schein (1992) himself strongly stresses the difficulties of approaching the level of basic assumptions as the systematic conceptualization of the culture's basic assumptions can be very ambiguous. Another criticism of the model is the inability to decipher the meaning of the artifact and value levels of the model until the culture's basic assumptions have been uncovered. Due to these operational difficulties and the conceptual concerns of the model which were previously mentioned in the literature review section of this report, the decision was made to supplement Schein's model with two other cultural audit models. While, due to the noted difficulties of deciphering the meaning of the artifact and value levels of Schein's model, these two levels were only minimally operationalized in this study, the basic assumption level of the model played an important role in this study. The basic assumption level of the model provided the researcher with a tool in which to analyze the data collected during the interview phase of the study.

To provide additional validity to the basic assumptions level of Schein's model,

the cultural audit models of Sethia and Von Glinow (1985) and Hofstede, Neuijen, Ohayv, and Sanders were used. As previously outlined, all three models are designed to highlight an organization's definition of what is reality and truth, its basic assumptions regarding human nature, and its belief system(s) on how people are to behave and relate to one another. The difference between the three models is in how they are operationalized. While Schein's model is based on in depth interviews, Sethia and Von Glinow's model is based on an analysis of an organization's reward system. The model designed by Hofstede, Neuijen, Ohayv, and Sander (1990) provided a mechanism with which to decipher the division's culture(s) through the examination of one of the division's primary tasks--budgeting. Four of the six dimensions of the Hofstede, Neuijen, Ohayv, and Sander's model were operationalized in this study. Due to limiting the analysis to issues regarding budgeting and/or reactions to changing financial situations, the model's dimensions of Parochialism versus Professionalism and Open versus Closed Systems were not operationalized.

To this effect, two methods of data collection were used: archival study and an ethnographic study including open ended, in depth interviews. The study looked at all areas under the Vice President of Administration and Finance at the University of Windsor.

Archival Study

Based on the literature review of the impact of changing fiscal resources on an organization's culture, the archival study began with a review of the University's audited annual financial statements for the period of 1985 to 1995. This included a review of the processes involved in the establishment of the University's annual operating budget and its corresponding financial statements. Particular emphasis was placed on the annual Statement of Revenue and Expenditures in Operating Funds. This financial document outlines the sources of revenue and all corresponding operating expenditures for each fiscal year. A chart developed from these annual statements highlighted trends and fluctuations of resources and expenditures during the past ten years.

In order to understand how funding, the primary source of the University's fiscal resources, is obtained, the second phase of the archival study examined the process used by the Ontario Ministry of Education and Training for the distribution of operating grants to the province's universities. The researcher then focused on how these governmental operating grants are distributed within the University of Windsor. To uncover the impact of changing governmental funding on the operation of the University, the study then examined the monthly minutes from the University's Board of Governor's Resource Allocation Committee from January of 1984 to September of 1995.

In order to understand the impact at the departmental level within the division of Administration and Finance, the researcher attempted to review the correspondence

between the Vice President and his directors regarding budgetary and other financial operating issues. Unfortunately, this proved to be impossible. Not only had the previous vice president cleaned out many of his files prior to his retirement in January of 1995, but when various directors were approached, it was discovered that there was no consistency among the division's departments on what files or correspondence were kept at the end of each fiscal year.

The third phase of the archival study involved a review of the organizational charts for the division, the job descriptions of each of the directors and other senior managerial staff within the Division of Administration and Finance, the formal mission statements of each department, the Report of the Strategic Task Force, Administration, and Services (1995) which is colloquially known as the Price Report, and the division's new strategic plan which was completed in the spring of 1996. Based on the focus of the study the review of the above documents was limited to financial issues.

A review of the University's reward systems for administrative staff concluded the archival phase of the study. This portion of the study began with a review of the University's various collective agreements which focused on wage and benefit sections. The researcher then reviewed the reward system policy for non unionized personnel within the division. The collected data was then reviewed using Sethia and Von Glinow's (1988) culture-reward system model (Appendix 1). As previously discussed the model is designed to uncover basic cultural assumptions within an organization by examining the

organization's reward systems.

Interview Phase of the Study

Subsequent to the archival review, the second stage of the study consisted of systematic in-depth interviews. While the review of the above noted empirical data had outlined the University's financial responses to changes in its operating grants from the Ontario Ministry of Training and Education, the archival study failed to provide an explanation for the variations and fluctuations in the distribution of operating funds between the various departments within the division. A secondary concern was the archival study's failure to provide sufficient data for the building of a thorough, rich, detailed, description of the organizational culture(s) within the division. The interview phase of the study not only allowed the researcher to gain an explanation for the variations in the allocation of operating funds within the division, but also an understanding of the various informants' perspective regarding the changing fiscal situation within a broader historical context. In addition, the interviews provided valuable descriptive data for the determination and causality of the different organizational cultures operating within the division.

Parameters for Interviews

The University of Windsor was chosen as the site to conduct the study as the

researcher is an employee of the University and had relative accessibility to this institution's financial documents and personnel. The specific focus of the study emerged during the numerous pre-study visits with senior administrators at the University. The university's Division of Administration and Finance was ultimately selected for the study when the researcher received permission to conduct this study from the Vice President of this division.

A single-stage sampling procedure was utilized for the interview phase of the study. No attempt was made to randomly select informants. Informants were purposefully selected based on their job description's outline of their financial responsibilities regarding the annual development of their unit's operating budget. Based on this criteria, the vice president of the division, and fifteen of his directors, department heads, and managers were selected (Appendix 2).

After gaining permission from the Vice President of Administration and Finance at the University, each organizational member selected for an interview was contacted, given the opportunity to refuse to participate in the study, and then assigned a date and time for their actual interview. All of the subjects agreed to participate in the study. Prior to the commencement of the interview, each interview participant was asked to complete a consent form, highlighting the researcher's guarantee to the informant that all information collected during the interview would be treated confidentially and that any published material would protect their anonymity (Appendix 3). Using predetermined

questions (Appendix 4) as a basic guideline, face-to-face, one on one interviews were then conducted with the vice president; the directors of Computing Services, Financial Services, University Services, Physical Plant, Campus Police, and Human Resources; the department heads of the Bookstore, Document Services, Residence Services, CAW Student Centre, and Medical Services; the assistant director of Financial Services; the manager of Purchasing/Post Office; and, the Superintendent of Housekeeping and Grounds. The Department Head of Food and Hospitality Services was not interviewed as the incumbent of this position is also the researcher who conducted this study.

Each of the interviews took place in each member's workplace office, was tape-recorded, and lasted from one to three hours. In addition to the interview, the researcher made observations during the interview process which were recorded as field notes.

Interview Design

Although data was collected by means of open-ended in depth interviews, the researcher's questions were based on six basic themes. The focus of the questions emphasized the role of obtaining fiscal resources from the environment and the possible effects on the culture(s) within the division. The questions were designed to operationalize various aspects of the cultural organizational audit models of Schein (1992), Sethia and Von Glinow (1985) and Hofstede, Neuijen, Ohayv and Sanders (1990).

Analysis of Interviews

Once all of the sixteen interviews were completed, the taped interviews were transcribed verbatim. A content analysis was then completed on each of the interview transcripts to index as many categories as possible. As a research method, content analysis provides a method "for studying beliefs, organizations, attitudes, and human relations" (Woodrum, 1984:1). Based on the nature of the study, the decision was made to utilize latent rather than manifest coding techniques. Although latent coding tends to be less reliable than manifest coding, it allowed the researcher to look for the underlying, implicit meaning in the content of the text (Neuman, 1994:260).

Utilizing latent coding techniques, the data categories were then organized and coded according to (1) Schein's (1985) basic assumption categories regarding reality and truth; time and space; human activity; and, human nature and social relationships; and as previously listed (2) Hofstede, Neuijen, Ohayv and Sander's (1990) six dimensions of an organization's culture. In addition, a list of other major themes was chronicled.

Results of the Study

Lofland (1974) suggests that although data collection and analysis strategies are similar across qualitative methods, the way the findings are reported is diverse. Miles and Huberman (1984) suggest that narrative text has been the most frequent form of display for qualitative data. Therefore, the results of this study are presented in a

narrative, descriptive, holistic form rather than as a scientific report.

The researcher has attempted to write what has been seen and heard so that it will make the same sense to the reader as it does to the researcher. The results of the study identify and describe the patterns and themes from the perspective of the participants. They also provide the reader with an explanation for these patterns and themes based on the review of the literature.

The findings of the latent coding are reported in deliberately vague tones in order to guarantee informants of their confidentiality and anonymity. Rather than utilizing actual statistics, the decision was made to use generalized terms such as "the majority of the respondents," or "few of the subjects," when describing the results of the latent coding.

RELIABILITY AND VALIDITY ISSUES

The desire to undertake this project derived from the researcher's own personal work history as well as the theoretical issues discussed in the review of the literature on culture and the environment. I, the researcher, am currently employed at the University of Windsor as the department head of food and hospitality services. As both the researcher and a member of the division of administrative and financial services, this study, like studies completed within the qualitative paradigm, assumes that all research is value-laden and biased.

Questions of bias and perception are significant issues for all social scientists.

This is particularly an issue in qualitative research, as interpretative study. Researchers working within the qualitative paradigm argue that the solutions to problems of perception and objectivity, in so far as they exist, are to be found in honesty, reflection, and criticism (Creswell, 1994; Neuman, 1994). While it has been argued that studying one own's culture inhibits research as "too much is too familiar to be noticed or to arouse the curiosity essential to research" (Aguilar, 1981:16), it has also been argued that insider research can also be very effective as an insider is more familiar with the "home" culture, making it easier to recognize subtle but important differences, and generally simplifying the process of data collection (Aguilar, 1981:17-25). Therefore, it is has been argued that it is not a matter of where one is, but how critically attuned one is to the structures and practices that generate and limit one's place in a complex system of differences and similarities (Aguilar, 1981; Creswell, 1994; Neuman, 1994).

A secondary issue is that of qualitative methodology. While it is recognized that qualitative methods are preferable to quantitative methods when the phenomena to be studied are complex human and organizational interactions as they allow the researcher to ascribe meaning to the data as they emerge, it is here that qualitative research has drawn its heaviest criticisms. It has been argued that there is no check to ensure the validity and reliability of the researcher's interpretation of the data collected during interviews, field observations or review of written documents. In an attempt to alleviate these concerns in

this study, these issues have been addressed using Guba's (1981) criteria for judging the trustworthiness of qualitative studies.

Guba (1981) has proposed four counterpart criteria for judging the trustworthiness of qualitative inquiries as well as specific procedures that can be used to establish that each counterpart criterion has been satisfied at a reasonable level. The counterpart criteria include: credibility (in place of internal validity), which addresses the truth value of the inquiry; transferability (in place of external validity), which addresses the basic question of applicability; dependability (in place of reliability), which responds to the question of consistency; and confirmability (in place of objectivity), which addresses the basic question of the neutrality of the inquiry. Guba lists a variety of techniques for each criterion. He notes, however, that not all techniques are equally weighty, and that it is unlikely, because of time and resource constraints, that all would ever be applied in the same study. Therefore, only the techniques used in this study will be mentioned.

Three techniques for establishing credibility were used: persistent observation, triangulation, and member checks. First, persistent observation was a basic characteristic of the data-collection and data-analysis process. With respect to data collection, issues were allowed to emerge from the various departments using open-ended questions. In the case of data analysis, the inductive data-analysis procedures were designed to allow issues to surface from the data and to define the division's cultural values and basic

assumptions. Second, triangulation was a major focusing technique. A variety of points of view about issues were explored by using respondents drawn from the various departments within the division. Documents were used as a second point of reference. The third technique was member checks, which were carried out assiduously. Member checks allowed informants to review the data collected for potential misinterpretation or error. This occurred at the conclusion of each interview with each informant. The final method of triangulation was the observation of nonverbal cues which was an attempt to reinforce or question the information gathered verbally.

Two techniques were used to establish transferability: purposive sampling and thick descriptions. Patton (1980) states that purposive sampling is to be purposeful, not statistical. The goal of purposive sampling is to maximize the scope and range of information gathered and hence to illuminate the most necessary factors to take into account when comparing two or more contexts for similarity (Patton, 1980). Thick descriptions are "full and dense descriptions that will provide a substantial basis for similarity judgements" (Skritic, 1980:201). As the intent of the study is to give readers a feel for the culture and the effects of funding changes on members within this division, the culture is reported as described through the eyes of the participants, and second, to "tease out lessons that might be learned from this local experience" (Skritic, 1980:197). To substantiate and illustrate the assertions being made, as well as to help the reader understand the people and the culture being described, the reported findings of the study

included the use of respondents' quotations.

With respect to dependability, Kirk and Miller (1986) note qualitative research utilizes synchronic reliability as a measure of dependability. "Synchronic reliability rarely involves identical observations, but rather observations that are consistent with respect to the particular features of interest to the observer" (Kirk and Miller, 1986:42). Therefore, researchers working within the qualitative paradigm argue that the solutions to problems of perception and objectivity, in so far as they exist, are to be found in honesty, reflection, and criticism (Creswell, 1994; Neuman, 1994).

In addition, all data collected were reviewed by the researcher's thesis advisor. This review included the researcher's thesis advisor listening to the taped interviews, reading each of the interview transcripts, and reviewing all of the researcher's data analysis. This allowed the researcher's thesis committee to (1) determine whether the research processes used fell within the domain of acceptable professionalism, and (2) for the establishment of the relationship between the researcher's claims and interpretations and the actual raw data collected.

Although utilization of the above noted techniques increased the reliability and validity of the study, it must still be acknowledged that limitations still exist. The proposed sampling technique was limited to administrative personnel who had direct responsibility for their department's annual operating budget. This sampling limitation may have created unknown biases in reporting the final results of the study, as key

information may have been missed. Also, due to time restrictions, the researcher was unable to fully utilize the observation of nonverbal cues as part of the triangulation technique to ensure credibility.

ETHICAL CONSIDERATIONS

Most authors who discuss qualitative research design address the importance of ethical considerations (Guba and Lincoln, 1981; Marshall and Rossman, 1989). First and foremost researchers have obligation to respect the rights, needs, values, and desires of their informants. This is of particular concern in this study where not only the informants' positions and institution are highly visible, but the researcher is also a member of the organization. The following safeguards were employed to protect the informants' rights: (1) the research objectives were articulated verbally and in writing so that they were clearly understood by each informant, (2) written permission to conduct the study was obtained from the University of Windsor's Vice President of Administration and Financial Services, (3) written permission to proceed was obtained from each informant prior to their interview, (4) the proposal for the study was reviewed and approved by the Department of Anthropology and Sociology Ethics Committee, and (5) the informant's rights, interests, and wishes were considered first when choices were made regarding reporting the data. Although all of the interview data collected was used during the analysis phase of the study, several key quotes were not reported in the

Findings Chapter in order to protect the interview subjects' anonymity. When it was necessary to report the subject's position within the division, the researcher contacted the individual, and received written permission prior to reporting the quote.

As previously noted, the desire to undertake this study was both personal and theoretical. Due to the researcher's position within the organization, the researcher interacts with each of the subjects on a fairly regular basis. These business relationships not only create reliability and validity issues for this study but also ethical concerns.

What follows is the researcher's representation of the interviews that were conducted as part of this study. Although in places the words are verbatim transcriptions of parts of the interviews, it cannot be denied that they were chosen to illustrate a certain point. While the text is constructed within the previously noted theoretical cultural audit models, it is undeniable that the personal and theoretical are intertwined in the pages that follow.

CHAPTER III

FINDINGS

ARCHIVAL STUDY

Overview of Financial Funding to Ontario Universities

Canadian universities currently receive their fiscal resources from a variety of sources which include government funding, tuition fees, and other miscellaneous revenue sources. Ontario universities receive the majority of their fiscal resources from government funding. The Ontario Ministry of Education and Training is responsible for the distribution of these grants to Ontario's universities. In 1994, the Ministry's Formula Grant provided 92.7 per cent of the total university operating grants disbursed to Ontario universities. Grants designed to address specific operating concerns made up the remaining 7.3 per cent (Ontario Council on University Affairs, 1994:14). Operating grants are for the purpose of providing universities with financial assistance in covering the cost of: instruction, research, academic support services, library, computing, student services, public service, administration, plant maintenance, and other operating expenditures. The Formula Grant cannot be used for funding sponsored or contract research; capital projects; principal and interest payments such as capital indebtedness; student aid; and, ancillary enterprises which are defined as residences, food and

hospitality services, bookstores, parking lots, and rental properties (Ontario Council on University Affairs, 1994). These are the financial responsibility of each particular university.

Formula funding of the Ontario university system is an approach which has a history dating back to 1967. Funding was originally set by enrolment levels which were established by counting full-time and part-time students enrolled at a university each term and determining their full-time equivalency (FTE) enrolment. They were then given a program "weight", from 1.0 for general arts and science majors to 6.0 for doctoral students. The weights were roughly reflective of the relative costs of the programs at the time of their introduction in 1967. These weights as applied to each student have become known as Basic Income Units or BIUs. Under the original formula mechanism, the dollar value of each BIU was set as an independent variable (independent of the total level of enrolment to be funded) at the first of each fiscal year (Ontario Council on University Affairs, 1994:12).

The provincial government has made changes to the formula eight times since 1967: five times in the 1970s and three times in the 1980s. In the early 1970's, the value of the BIU became a dependent variable where the government stated the global level of grants available and where the dollar value associated with each BIU became the quotient of the total funds allocated for the system divided by the total number of BIUs in the province (Ontario Council of University Affairs, 1994:7).

The current funding formula, known as the "corridor funding system", was first introduced in 1987-88. Under the "corridor funding system", each university receives a fixed share of the provincial government's university system's Formula Grant rather than receiving funding based on their actual full-time equivalency enrolment figures. Each institution's share of corridor funding system was originally determined by its relative level of student enrolment during the years of 1974 to 1986. An institution continues to receive a fixed share of the Formula Grant so long as the five-year moving-average of its weighted enrolments remains within a band of plus or minus 3 percent of weighted enrolments associated with its fixed share of income. If enrolment levels fall such that an institutions's five-year moving-average drops below its corridor floor, then the university's share of the Formula Grant will decline. If an institution's enrolment goes above its corridor ceiling, however, it does not automatically receive additional funding except for fees collected from the individual student (Ontario Council on University Affairs, 1994).

Although Ontario universities receive their governmental funding directly from the provincial government, the provincial government receives the majority of its educational funding from the federal government. In 1977, the federal government introduced a formula to share the cost of health care and post-secondary education with each of the provincial governments. The Established Programs Act (EPA) was meant to guarantee long term funding stability by providing yearly increases in line with national

economic growth. But in 1990, the federal government put a freeze on payment increases. In 1994, the federal government announced further changes to its Established Programs Act. Transfer payments to provinces would continue to rise according to the existing formula for two years, but, in the third year, transfer payments for post-secondary education would be reduced to their 1993-94 levels.

In response, the Ontario Provincial Government launched an Expenditure Control Plan. As part of its Expenditure Control Plan, the provincial government in 1993 began reducing the level of funding to the province's institutions, including its universities. To assist universities and other provincial institutions in dealing with the reduced level of funding, the provincial government introduced a plan to reduce the labour costs within these institutions. The ensuing "Social Contract" legislated the freezing of provincial government employee's wages for each of the next three years. Since 1993, funding levels have again been reduced to Ontario universities and these institutions have been notified to expect further funding reductions in the future.

Overview of Financial Funding at the University of Windsor

The University of Windsor receives its fiscal resources for the funding of instruction, research, academic support services, library, computing, student services, public service, administration, and plant maintenance expenditures from a variety of sources: government funding, tuition and other fees, ancillary operations, and income on

investments. Similar to other Ontario universities, the university receives the majority of its operating fiscal resources in the form of governmental operating grants (Peat, Marwick and Thorne, 1995).

In 1994-95, the University of Windsor's total operating budget was \$125.1 million. Somewhat more than half (54.9%) or \$68.6 million of the total funds required to cover this budget were from operating grants provided by the Ontario Ministry of Education and Training. The remaining \$56.5 million were generated from students' tuition and other fees (\$35.6 million), ancillary operations (\$18.7 million), and other income (\$2.1 million) (Peat, Marwick and Thorne, 1995).

The Distribution of Fiscal Resources at the University of Windsor

Allocation of resources at the University of Windsor, like other Ontario universities, is determined by its Board of Governors. These governing bodies are responsible for ensuring that their university is operated in an efficient and effective manner. This responsibility includes the responsibility of managing their university's fiscal resources which is usually overseen by a subcommittee of the Board. The senior administration of the university is responsible for the submission of all financial matters to its Board for approval prior to implementation. This includes the annual operating budget of the university. An annual operating budget outlines the sources of all anticipated revenue including operating grants, and lists how these funds will be

distributed within the institution.

At the University of Windsor, this subcommittee of the Board of Governors is named the Resource Allocation Committee (RAC). The RAC is responsible for overseeing the financial operations of the University. The RAC's terms of reference are:

"To assess and make recommendations, for the consideration of the Board for the attainment of the objectives of the University, including the following:

- i) the operating budget of the university
- ii) the priority of capital needs
- iii) the long-term financing of budgetary deficits
- iv) the long-term financing of capital projects
- v) the commercial use of University facilities"

(By-Law No.58 of the University of Windsor)

Although the terms of reference include the long-term financing of budgetary deficits, the university's Board of Governors implemented a balanced budget policy in 1975 (Fiscal Planning Committee Minutes, Feb. 11, 1975). This policy is still in place.

The RAC meets every second Wednesday of each month from September to May and then only as required during the months of June, July, and August. The University of Windsor's Vice President of Administration and Finance is responsible for submitting all financial recommendations and requests to the RAC approval. This responsibility includes the annual submission of the university's operating budget prior to the

commencement of the fiscal operating year, and the university's annual financial statements at the close of the fiscal year.

The Budgeting Process and the Preparation of the Annual Financial Statements at the University of Windsor

The university's fiscal year begins on May 1st and ends on April 30th. Since the Board of Governors must approve the operating budget prior to the commencement of the fiscal year, the university's administrative staff begins the process of preparing the upcoming year's operational budget approximately six months prior to the beginning of the fiscal year.

The annual operating budget acts as the operating guideline for the university's administrators, as it outlines how funds are to be disbursed and spent. The budget is developed by first calculating the anticipated total fiscal resources that the university expects to receive within the upcoming fiscal year. This process includes projecting the level of funding that will be received from the Ontario Ministry of Education and Training, estimating student enrolment levels and the corresponding tuition fees that will be collected, calculating the revenues that are expected to be generated by the university's ancillary operations (residence, food and hospitality services, bookstore, rental properties and parking lots), and forecasting any other potential revenue sources. Once the university's Finance Department has calculated the total amount of fiscal resources that

can be anticipated in the upcoming fiscal year, it is listed on the budget under the section titled "Revenue". Based on this amount, the Vice President of Administration and Finance then determines the budget expenditure guidelines for the various university departments. These guidelines include the requirement that the university as a whole submits a balanced budget as required by the Board of Governor's Resource Allocation Committee (RAC). Working within these guidelines, the university's directors, deans, and department heads are then responsible for the development of their individual department annual operating budget. Once these departmental operating budgets are submitted to the Department of Finance, and approved by the Vice President of Administration and Finance, they are summarized and added under the section titled "Expenditures" on the budget. Following the completion of the proposed budget, the Vice President of Administration and Finance submits it to the RAC for their approval. If approved, the RAC then recommends to the full membership of the Board of Governors that the budget be accepted and implemented as prepared. If the budget is not accepted or approved, the university administration must redo the budget and resubmit it to the Board of Governors. Upon receiving the Board of Governors' approval, the university's administration is then responsible for achieving the budget as outlined. If there are unexpected changes in fiscal resources or expenditures during the fiscal year, it is the Vice President of Administration and Finance's responsibility to bring these changes to the RAC's attention.

At the end of each fiscal year every Ontario university is expected by the Ministry of Education and Training to retain the services of an independent chartered accounting firm. The accounting firm audits the university's financial operations for the past year to determine that the universities have spent their resources as mandated by the Ministry. The accounting firm also prepares and publishes the university's annual financial statements using the Canadian Association of University Business Officers "Guidelines: Financial Statistics for Universities and Colleges" format. Part of a university's annual financial statements includes the "Statement of Revenue and Expenditures in Operating Funds" which reports the actual operating costs incurred by a university during the past fiscal year.

The Annual "Statement of Revenue and Expenditures in Operating Funds" (1985 to 1995)

While the annual operating budget forecasts the anticipated costs of operating the University for the next fiscal year, it is a university's "Statement of Revenue and Expenditures in Operating Funds" that reports the actual annual operating costs incurred by the university. The role of these statements is to report how funds were actually generated and spent. They do not explain why operating funds were spent in the manner in which they were. At the University of Windsor, it is the Vice President of Administration and Finance's responsibility at the end of each fiscal year, to explain to

the RAC the causes for any variances between the original operating budget and the "Statement of Revenue and Expenditures in Operating Funds." A written explanation is usually included in the university's annual "President's Report."

An analysis of each of the University of Windsor's past ten years "Statements of Revenue and Expenditures in Operating Funds" was conducted. The section titled "Revenue" shows that governmental operating grants increased for each consecutive year during the period of 1985 to 1993. But, beginning in 1994, this pattern was broken and grant revenue began to decrease. During the past two years, grants to the university have been reduced by over \$7.8 million dollars. This reduction in governmental support has been partially offset by the university increasing fees charged to students for tuition and other services, increased earnings by ancillary enterprises, and increases in other miscellaneous revenue sources (Deloitte and Douche, 1985-1990; Peat Marwick and Thorne, 1991-1995).

An analysis of the "Expenditure" section shows that university expenditures increased each year during the period of 1985 to 1994 but, in 1995, overall expenditures decreased by \$4 million from those reported in 1994 (Peat, Marwick, and Thorne, 1995).

Annual Percentage Change in Revenue and Expenditures from 1985 to 1995

The Table of "Annual Percentage Change in Revenue and Expenditures" (Appendix 6) is composed of data collected from each of the ten year's "Statement of

Revenue and Expenditures in Operating Funds". The table reflects in percentage points the year to year changes in selected revenue and expenditure sections of the Statement.

The areas within the revenue and expenditure sections of the table were formatted to correspond with the each of the categories listed on the "Statements of Revenue and Expenditures in Operating Funds." The revenue portion of the table includes sections titled: Student Fees, Government Grants, and Ancillary Enterprises. Student fees include tuition and any other fees collected by the University. Government grants includes the Formula Grant and any other operating grants that the university may have received. Ancillary enterprises includes the bookstore, food and hospitality services, residences, parking lot income, and rental properties. The expenditure portion of the table is composed of sections titled: Computing Services, Administration Services, Plant Maintenance, and Ancillary Enterprises. Computing services includes all non academic computing costs. Administration includes the activities of the president's office; vice presidents' offices; registrar and admissions; finance; human resources; university planning; printing and duplicating services; purchasing and stores; public relations; secretariats; research administration; alumni office; public information office; and the development office. It also includes expenditures incurred for convocations, ceremonies, legal and audit fees. Plant maintenance includes the university's heat, hydro and water bills plus all costs associated with cleaning and maintaining all university owned buildings and grounds. Ancillaries' costs includes all costs incurred by the university in

order to provide these services.

While the table's data report the changing patterns in the total revenue and total expenditures over the past ten years, it also shows the relationship between total revenue and expenditures incurred by the departments under the sections titled computing services, administration services, plant maintenance and ancillary enterprises. During the ten year period between 1985 and 1995, there appears to be little relationship between the University's total revenue, collected from student fees, government grants, and ancillary enterprises in a given year, and the total amount spent by the university on its operating expenditures. For example, in 1989, the University's total operating revenue increased by 8.4 per cent, but total operating expenses only increased by 5.5 per cent. In 1994, the university's total revenue decreased by 2.5 per cent from those of 1993 but its total operating expenditures increased by 1.4 per cent.

Also, operating funds expensed by the university's computing services, administrative services, plant maintenance, and ancillary enterprises not only varied from year to year, but also varied from department to department. For example, in 1993, total university revenue increased by only 4.1 per cent but computing service's operating costs increased by 7.8 per cent, plant maintenance's by 12.8 per cent, and ancillary enterprises by 9.8 per cent. Yet during this same year, administrative services operating costs actually decreased by .5 per cent.

However, this initial review of the university's Statement of Revenue and

'Expenditures in Operating Funds' and corresponding table of percentages is misleading because the sections listed under expenditures do not all accurately represent the actual reporting structure within the university. The university's division of Administration and Finance's organizational chart does not include either an administrative nor ancillary enterprises section as defined by the Statement of Revenue and Expenditures in Operating Funds. The category of "administrative services" on the "Statement of Revenue and Expenditures in Operating Funds" includes the president's office, vice presidents' offices, registrar and admissions, finance, human resources, university planning, printing and duplicating services, purchasing and stores, public relations, secretariats, research administration, alumni office, public information office, and the development office. It also includes expenditures on convocations, ceremonies, legal and audit fees. Not only do each of these departments or areas within the actual organizational structure each have their own budgets, but some of the departments report to the President, some to the Vice President Academic, and others to the Vice President of Administration and Finance.

In addition, some of the individual departmental budgets are divided between two or more categories on the Statement of Revenue and Expenditures in Operating Funds. For example, the budget of Campus Police is divided between the categories of "administrative services" and "ancillaries." This split is necessary as parking, which is part of Campus Police's actual responsibility and budget, is defined for auditing purposes as an ancillary service.

The category titled "ancillaries" on the Statement includes only the bookstore, food services and hospitality services, residence services, parking and rental properties. While the bookstore, food services, and residences are part of the Director of University Services' financial portfolio, parking is the responsibility of the Director of Campus Police, and rental properties are included in the financial responsibilities of the Director of Physical Plant. The majority of the Physical Plant budget is shown under the title of "Plant Maintenance."

These variances between what is reported on the "Statement of Revenue and Expenditures in Operating Funds" and the actual departments' financial responsibility are due to the financial statements format outlined by the Canadian Association of University Business Officers. In the 1980s, this association recommended the adoption of a standardized format for all Canadian universities' annual financial statements. The implementation of a standardized format, it was argued, would allow universities the opportunity to compare their financial situation with those of others. In 1985, the University of Windsor initiated the format recommended by the Canadian Association of University Business Officers even though the organizational structure of the University did not, and still does not, match the university's annual financial statements.

The Impact of Changing Governmental Funding on the Operation of the University

Further insight into the consequences of funding changes can be obtained from

Board of Governor's Resource Allocation Committee Minutes. Review of the RAC meeting minutes from January 1985 to April 1995 documents the university's response to the various changes in government financial support during the past ten year period. The major responses can be identified as follows:

Beginning in 1985, the minutes report how the 1984 change in Ontario's Ministry of Education and Training's funding formula resulted in the university generating "a modest surplus for the year ending April 30, 1985" (Resource Allocation Committee Minutes [RACM] April 25, 1985). The effects of this increase in grant revenue is evident in the minutes of the RAC's January 1986 meeting in which the RAC supported the administration's proposal to allocate \$1 million from 1985-86's operating budget to the university's reserve fund known formally as the Resource Pool (RACM, Jan. 21, 1986).

At the RAC meeting in April 1986, the administration requested permission from the RAC to use funds from the \$1 million dollar Resource Pool to offset the 1986-87 projected deficit (RACM April, 12, 1986). This was now necessary as student enrolment had decreased from the previous year. This drop in enrolment had caused the university to unexpectedly anticipate operating deficits for both 1986-87 and 1987-88. To eliminate these deficits, the RAC approved the administration's request that the \$1 million be transferred from the 1985/86 Resource Pool to the 1986/87 fiscal year (RACM, August 12, 1986). These funds drawn from the university's reserve fund would be used to offset the costs of operating the university for the 1986-87 and 1987-88 fiscal

years (RACM, August 12, 1986).

Although the university was mandated to operate a balanced budget, the proposed budget for 1987-88 was approved by the RAC even though there was a projected shortfall of \$88,000 (May 20, 1987). The approval was granted on the basis of the RAC's view that the operating deficit was nothing more than a short term problem since the university's administration had been informed in the previous year that the "new grant formula will be implemented in the near future offsetting future operating deficits" (RACM, April 22, 1986).

Although departmental expenditures were not reduced in 1986-87 as originally planned (RACM, Jan.21, 1986), the university reported a deficit of only \$5,000 for the 1987-88 fiscal year (Deloitte and Douche, 1988). This was possible due to net revenue increases from tuition fees and rental properties combined with employee benefit cost reductions (RACM, March, 25, 1987).

At the May 1988 RAC meeting, the Vice President noted that due to the projected increase in students, the 1988-89 budget was a balanced one in accordance with the Board's resolution (RACM, May, 18, 1988). At the RAC's January 1989 meeting, the Vice President of Administration and Finance presented a six-month review of the current 1988-89 budget and noted that "the surplus now projected would be carried forward to be used for one-time expenditures in 1989-90" (RACM, Jan. 11, 1989).

At the close of the 1989-90 fiscal year, the university again reported an operating

surplus (Deloitte and Douche, 1990). It was noted that the Ministry's 1989 formula change had significantly boosted the university's total operating grants for the year. The RAC then approved administration's request to spend the 1989-90 surplus on equipment replacement, repairs, renovations and other required capital needs (RACM, July 11, 1990).

At a preliminary review of the 1990-91 operating budget, the university administration informed the RAC that the university was faced with increased costs due to the provincial government's implementation of pay equity and a new payroll health tax. The administration advised the RAC that, "There will be no reductions at the University of Windsor for this year but as the budget does not allow for inflation, departments will see reductions in their purchasing ability" (RACM, Jan. 17, 1990).

In an attempt to further reduce operating costs, the RAC accepted the university's proposal to eliminate the contractor in Food Services, which would save the university an estimated \$360,000 in management fees per year (RACM, March 20, 1990).

At the October 1991 meeting, the university administration notified the RAC that it had been informed by the Ontario Ministry of Education and Training that operating grants to the province's universities were being cut by half a percent. The Vice President of Administration and Finance, stated "that this was the first time he had faced a mid year reduction in operating grants". He also informed the RAC "that no necessary measures needed to be taken at this time and that he felt confident that it would not be necessary to

reduce departments' budgets for the current fiscal year" (RACM, Oct. 16, 1991).

Even though the University had received a half percent reduction in its governmental operating grants for 1991-92, the university was again able to report a small surplus for this fiscal period (Peat Marwick Thorne, 1992). This was primarily due to an unexpected increase in student enrolment and a higher investment income than expected (RACM, Jan. 15, 1992).

At the January 1992 meeting, the Vice President of Finance and Administration informed the RAC that the Ontario Ministry of Education had notified the university of future transfer cuts (RACM, Jan. 15, 1992). At the June 1992 meeting, he further informed the Committee that the university was projecting a \$1.5 million dollar deficit for 1992-93. He noted that "the \$1.5 million deficit showing in the proposed 1992/93 budget could be covered by funds brought forward from the 1991/92 fiscal year" (RACM, June 10, 1992). This step would allow the university to report a balanced operating budget for 1992-93.

It was noted that although the university administration could cover the operating deficit for 1992-93 with the 1991-92 surplus, this was at best a short term solution as the university was not expecting any future increases in governmental funding levels. In an effort to respond to the university's financial difficulties, the Vice President informed the Committee "that meetings had already taken place with the Deans and administrative department heads to prepare for budget reductions of up to 4% resulting in base budgets

reductions of \$3,500,000 in order to bring the 1993-94 budget into line." It was noted that the implementation of departmental budget cuts represented a significant turning point for the university as budget cuts had always been successfully avoided in the past (RACM, June, 10, 1992).

According to the minutes, at the Committee's December 1992 meeting,

[The Vice President] informed the committee that the recent news regarding operating support for 1993/94 was not good. The previous announcement from the Province of a 1-2-2% increase for the next three years had been cancelled by the November 26th letter from the Treasurer. The transfer payments for operating funds to Ontario universities would be capped at the 1992/93 level for both 1993/94 and 1994/95 (RACM, Dec. 9, 1992).

The September 1993 meeting minutes reflect the Committee's growing concern regarding the university's financial situation. The Committee was informed that under the provincial government's new Expenditure Control Plan the university would have its governmental funding cut by an additional \$3.6 million. To assist the university with this funding reduction, the provincial government's legislated Social Contract stipulated that no employee making in excess of \$30,000 per year was to receive a raise within the next 3 year period. It was noted that this was the first time that salaries of university employees had been negatively affected (RAC, Sept. 8, 1993). Prior to the introduction of the Social Contract, University of Windsor wages and salaries had been increasing at a rate of approximately five per cent per year.

Even with this mandatory wage freeze, the university administration informed the

RAC that they still could not present a balanced budget and projected a deficit of \$382,000 for the 1993/94 operating year. The Vice President also "indicated that the projected deficit for the 1994-95 fiscal year was expected to be \$1.869 million." He noted that "over the past several years the university had established reserves against financial contingencies such as the university was now facing. The projected deficit could be covered by the existing reserves." He informed the Committee that administration was taking steps to address the financial situation at the University of Windsor. He explained that the campus community had been notified that further cuts would be needed over the next two years and that two Strategic Planning Committees had been established to look at how the university could restructure itself in an attempt to become more cost effective. According to the minutes, discussion followed in which Board members expressed concern over using reserves to cover the 1994-95 deficit when there was no guarantee that the next two years would be any better. When asked what the Board of Governors' options were if the RAC did not approve the proposed deficit budget, the University's President responded that "it would be counterproductive to have to redo the budget at this point in time since administration had moved as far as they possibly could in making budget reductions. Downsizing over the next two years would now be necessary." After still further discussion, the minutes show that it was

RESOLVED that the Resource Allocation Committee accept the proposed 1994/95 budget and recommend it to the Board of Governors for approval with a deficit of \$1.869 million with the clear understanding that the budget would be brought into balance over the next two years (RACM,

June 8, 1994).

At the September 1994 meeting, the Committee again expressed concern to the university's administration regarding the operating deficit. A Board member of the RAC.

stressed that the Board of Governors must take a more aggressive attitude and determine where the cuts must be made. He argued that timing was a problem and that the Board should not sit and wait for the task force reports. He also felt that the Board should receive a more detailed analysis of all university expenditures (RACM, Sept. 14, 1994).

At the January 1995 meeting, the university's administration informed the RAC that the administration now realized that the deficit for 1994-95 would be higher than originally anticipated. In an attempt to reduce costs the university administration had introduced "hiring controls and other actions" (RACM, Feb. 14, 1995). The revised deficit for 1994-95 was now being projected at \$2.175 million. The minutes reflect the Committee's increasing anxiety and concern regarding the growing deficit (RACM, Feb. 14, 1995).

At the April 1995 meeting, the university administration informed the Committee that even with additional cost reductions in each department, and a proposed reduction in staff, they could still not balance the 1995/96 budget. It was noted that during the "last five years, Provincial grants have been reduced by approximately \$9.5 million dollars" (RACM, April 25, 1995). The Committee indicated to the university administration that they expected the university to make even further cost reductions. A member of the RAC "indicated that a clear message should be sent to the Senate as to the amount of actual

dollars that must be cut" (RACM, April 25, 1995).

To summarize, the minutes of the RAC reflect that during the fiscal period from 1984-85 to 1991-92 the university experienced a relatively stable financial operating period. During these years, the minutes document that although the RAC spent time annually reviewing the university's operating statements, the majority of its time was focused on the university's various capital projects and expenditures. Although the university reported an operating deficit in 1987-88, this was viewed by both the university administration and the RAC as nothing more than a temporary problem.

But beginning in 1992-93, the university entered an era of financial instability due to the increasing level of governmental funding cuts. The minutes of the RAC meetings reflect the Board's growing concern in regards to the university's ability to operate within a balanced budget framework. By 1994, the majority of each RAC meeting was spent discussing and reviewing the university's operating costs. In an effort to reduce the Board's growing anxiety, the President of the University in June of 1994 established two Strategic Planning Committees to look at how the university could restructure itself in an attempt to become more cost effective. With the university's financial reserves quickly being depleted, the RAC has in the past year taken an even more aggressive role in the management of the university's operations, demanding that the university administration provide the Board with more detailed analysis of all operating expenditures and informing the administration that it must make additional operating cuts.

The review of the excess of revenues over expenditures section of the university's Statement of Operating Funds and Expenditures for the past ten years outlines that the University of Windsor has only reported a deficit twice since 1985. Once in 1988, and again in 1995. The 1988 deficit of \$5,000 was successfully absorbed within the next fiscal year's operating budget (Deloitte and Douche:1988, Peat Marwick and Thorne,1995). The decision on how to handle the 1995 deficit of \$1.6 million had yet to be finalized by the university's administration and Resource Allocation Board when this section of the study was completed.

Review of the University of Windsor's Report of the Strategic Planning Task Force, Administration and Services (1995)

The Strategic Planning Task Force, Administration and Services (SPTF) was established by the president of the university in June of 1994. This review was completed in December of 1994, and published in January of 1995. The task force, which was comprised of one academic and six members of the administration, was given the mandate to (1) conduct a critical review of all administrative areas, and (2) propose ways in which the university might reorganize its available resources, both on a short and long term basis. A five year budget projection which was forecasting significant reductions in the university's operating revenues for the years ahead had been completed previous to the establishment of the task force. Due to the university's Board of

Governor's policy prohibiting operating deficits, the university was faced with the necessity of reducing future years' operating costs.

The final report made 175 recommendations. Over fifty percent of them were of a cost savings nature. Although the remaining recommendations did not deal directly with cost savings, they were suggested as ways in which the division could provide more effective and efficient services. In addition, the report made recommendations which involved the elimination of both managerial and unionized employees' positions.

Review of the University's Reward System for Non Academic Staff

The term reward system is frequently used to describe, singly or jointly, the following interrelated elements: (1) the types of rewards that are available in an organization, (2) the conditions according to which different rewards are made available to individual members, and (3) the ways in which these rewards and the criteria for their allocation are selected and administered in the given organization (Sethia and Von Glinow, 1985:403).

At the University of Windsor, all staff wages and salaries within the division of administrative and financial services are based on job content. Hourly wages are determined through the negotiation process between the university's administration and the various unions which represent the division's hourly employees. Salaried employees' pay rates are determined by the number of points the incumbent's formal job description

received when evaluated by the university's Administrative Job Evaluation Committee. Everyone at a certain grade is paid the same salary and receives the same wage increases regardless of the individual's level of performance within the position.

Salary and wage increases, when given, are unrelated to performance and have more to do with the incumbent's position within the university's formal hierarchy. Status differentiation is supported not only by higher salaries, but also with superior benefit packages, and preferred office space. But salaries and wages at the university for staff at income levels of \$30,000 and above have now been frozen for the past three years. Even with the three year salary freeze, the division's wage and salary rates are still considered by the Department of Human Resources as similar to those offered at other Ontario universities. Due to the difficult financial situation that the university now finds itself in, the policy of frozen wage rates is expected to remain in effect. Even though wages are frozen, no other form of bonus or performance-based incentives currently exist within the division.

There is no formal performance evaluation process for staff employed within the division as wages are based on job content rather than on individual performance. While people are expected to make a reasonable effort in their day-to-day work, there have been few terminations based on an employee's lack of performance. Although staff have been promoted in the past, the organization often fills vacant senior managerial positions with personnel from outside the institution.

The university has provided its employees with long term job security. Due to the current fiscal crisis within the institution, layoffs have recently been implemented for the first time in the institution's history. Prior to its recent financial problem, the university had operated in a rather stable environment, in which employees obtaining employment at the institution expected to be assured of life long employment. This expectation is supported when one notes that previous to the layoffs, the University had averaged less than two percent per year in staff turnover, and that even after the recent layoffs, the average length of employee service is still approximately 15 years. In addition, out of approximately 359 full time employees, the division has 58 employees who have worked at the university for more than twenty-five years.

Based on the model of Sethia and Von Glinow (1985), the reward system within the division of administration and finance describes the division's culture as a combination of a Caring and Apathetic culture. The division meets the criterion for the Apathetic culture as it has not only enjoyed an entrenched position in its industry, but has until very recently, operated within a protected environment. In addition, there are no rewards provided for individual performances and status differentiation is high. But the division does not meet the Apathetic culture criterion for salary levels, job security, and issues of job performance. In these areas, the division's culture is that of the Caring culture. Based on the salary and wage rates at other Ontario universities, the staff working within the Division of Administration and Finance at the University of Windsor

have average to good salary and wages. In addition, they have been provided with excellent job security, and have enjoyed working conditions in which reasonable levels of work have been the accepted norm.

SUMMARY AND IMPLICATIONS OF ARCHIVAL DATA

During the years of 1985 and 1993, the university experienced a relatively stable financial period. The division of administrative and financial services received adequate provincial funding to operate all of its various departments. During this period, ancillary services, which are mandated to be financially self-sufficient, generated sufficient revenues to cover all of its operating costs. Overall, these years were financially comfortable for the institution as provincial funding increases continued to match or surpass the university's annual increases in operating costs.

The institution's reward system is a reflection of this period of financial stability. Salaries are based on job content rather than on an individual performance within the position. Conditions for rewards are not strongly related to performance. Salary and wage increases, when given, have more to do with the incumbent's position within the university's formal hierarchy. As Sethia and Von Glinow (1985) note, this type of reward system is most often seen in organizations that operate in stable, protected financial environments.

Beginning in the 1993-94 fiscal year, the province began reducing its financial

commitment to its universities. This reduction in governmental financial support has created a financial crisis at the university. In a period of less than three years, the university's financial environment has gone from one of relative economic stability to one of uncertainty. Due to their growing concerns regarding the financial future of the university, the Resource Allocation Committee of the Board of Governors has begun to take a much more intense interest in the institution's financial decisions regarding day-to-day operations. In order to comply with the University's Board of Governor's balanced budget policy, the division's departments have had no choice but reduce their operating budgets. In addition, the university's president established the Strategic Planning Task Force, Administration and Services to not only conduct a critical review of all administrative areas, but also to propose ways in which the division could reduce its overall operating costs. The task force published its recommendations early 1995. Their recommendations included the elimination of various positions within the division. This was viewed as a radical departure from past practice, as prior to this report, the university had always supplied its employees with long term job security.

Ancillary services do not appear to have been directly affected by either the reduction in governmental operating grants, nor by the Strategic Task Force Report's many recommendations. Since these departments do not rely on government funding to operate their departments, the reduction in government funds to the university has had little direct impact on them. In addition, there were few recommendations made by the

Strategic Task Force on this area of the division. It appears that in order to comply with their customers' expectations, ancillary services were already being operated fairly cost efficiently.

While some departments within the division of administrative and financial services have experienced reductions in their operating budgets, it appears that the level of reductions has fluctuated between the various departments. The archival portion of this study has not been able to determine the reasons for these noted variations and fluctuations between the various departments within the division. In addition, as previously noted, the data reported on the university's annual Statement of Revenues and Expenditures do not accurately represent the actual operating budgets of several of the directors within the department. Therefore, in order to gain a more in depth understanding of the budgeting process and its impact on the division's culture(s), interviews with the directors and department heads within the division became necessary.

CHAPTER III

THE INTERVIEWS

PAST PRACTICES AND FINANCIAL PHILOSOPHIES

As previously discussed in the literature review, analysts studying organizational cultures have concluded that an organization's environment impacts on its culture. Furthermore, it is now accepted that the "business environment is the single greatest influence in shaping a corporate culture" (Kennedy and Teal, 1982:13). Although the archival study objectively outlined the relationship between the university's fiscal environment and its various policies and procedures, it could not provide an in depth view of the division's culture(s). The interviews, with their rich descriptions, filled this void. By discussing various financial practices, the interview respondents provided the researcher with an in depth description of the cultural assumptions operating in the division. The interview data revealed that in the past, two relatively distinct operating philosophies existed within the division. Although these distinctions still exist, the data also record recent changes in the two cultures as their members adapt their norms, values, and beliefs to reflect the changes occurring in the institution's fiscal environment.

In the past the division's budget "was quite centrally done." As the vice president described the process, "It's my understanding that the previous vice president would set

the financial targets that would be required...each department then had some input, but he made all the final decisions on what changes did or did not take place in their operating budget."

While the archival study documented fluctuations in the amounts of budget increases and/or decreases between the various departments within the division, it could not explain why this occurred. The issue was resolved in the interview with the vice president. Although he has only been in the position since January of 1995, he explained that it was his understanding that the former vice president's philosophy had been to always treat each of his departments as equals as much as possible. But he also noted how this goal had not always been accomplished due to the reality that, "there were different priorities year to year...different pieces changed." Therefore, by the end of the annual budget preparations, the vice president had often had no option but to award some departments a higher percentage of the allotted operating grant than had been originally planned. In order to balance the division's total budget, he was then forced to compensate these additional expenditures by decreasing the amount of operating funds to other departments within the division.

Budgeting and Financial Practices in the Non Ancillary Departments

Subjects from Campus Police, Human Resources, Computing Services, Physical Plant, Document Services, and the Department of Finance, each of which rely on

government funding to cover their operating costs, noted how their budgets had been historically determined. In the words of one respondent, "We would take the previous year's operating budget and look at any difference that we anticipated between the current year when you are planning and the year you are planning for which is the future year. So, if we had \$100 expense one year, and it was going up ten percent, then you would budget for \$110 in year two." There was a general consensus among these non ancillary subjects that once one received an increase to a line item expense, one did not voluntarily reduce it during subsequent budgeting preparations. As one non ancillary respondent noted, "If there was the potential for a savings, we would still budget the same figure as the previous year. If the savings happened, it provided us with some additional padding."

As outlined in the archival study, each of the division's directors are responsible for submitting their budget proposals to the vice president for approval. In the past, the vice president would review these budget proposals and then arbitrarily make a decision based on their submission. Noted one non ancillary respondent, "Although I was required to submit a budget proposal, there was no budget negotiations, no budget meetings. I was just literally handed the budget and told this is what you are getting for next year."

Another described the process as, "Basically, it was set for us. This is your budget, you can't change it." A third director, responsible for a very large operating budget, stated, "It [the budget] was always set for us [by the former vice president]. The process was top down. I didn't feel like I had a whole lot of choices."

None of non ancillary respondents recalled that the operating budget had played a significant role in their department's day to day operations. "We never spent much time looking at the budget once it was completed as most of our costs were fixed."

Overspending of budgets throughout the fiscal year appeared to be a regular occurrence. As one director explained, "It has always been budgeted at \$8,000 since day one--pure fiction. I always overspent it." Another noted, "Certain unforeseen events would occur through out the year and I would get extra monies assigned to them [by the vice president]." This practice of being given additional funds when needed explains the variance that was noted in the archival portion of the study between the original budget and actual expenditure figures.

Subjects, especially those working in the non ancillary departments, also believed that "there's a financial pot somewhere..." for covering unexpected additional expenditures. Each of the non ancillary directors noted how, when they needed additional funds during the fiscal year, they would approach the vice president for access to this financial pot. One described the process, "Historically, we have always gone to the vice president when we needed additional [financial] support during the year." The vice president would listen to their request for additional funds, and if he believed the additional cost was justified, he would then proceed to give the director the money. As one director noted, "He [former vice president] was always very good in giving me additional funds."

At the end of each fiscal year, any unspent funds in the non ancillary departmental budgets had to be turned back over to the vice president. Although there was an institutional mechanism in place to deal with unspent budgetary funds at year end, the prevalent cultural norm was one of "if you didn't spend it, you lost it." Many of the directors noted how this attitude had resulted in dysfunctional year end spending habits. "There are stories around this place of finding equipment that was never used, that is now obsolete... because somebody in the past decided to stock pile at year end rather than turning the remaining money back in [to the vice president]."

Budgeting and Financial Practices in the Ancillary Units

While the above practices, norms, and beliefs describe the past budgeting and financial philosophies of the non ancillary departments, they do not describe those of the ancillary units, comprising of the Bookstore, Residence Services, Food and Hospitality Services, CAW Student Centre, and Health Services. As previously discussed in the archival section of the study, ancillary units have never been eligible for government funding. Unlike non ancillary departments, ancillary departments do not obtain the funds to cover their operating expenses from any government operating grant. As the director of University Services explained, "Ancillaries don't receive anything from the government. We have historically covered our operating costs through a combination of student fees and cash sales." This difference has created not only different budgeting and

financial practices within the ancillary units, but also different cultural assumptions.

While non ancillary departments were basically given their budgets by the vice president, ancillaries were responsible for developing their own budgets. Budgeting in ancillaries was completed at the unit level. In the words of one respondent, "Each department head has always been responsible for developing their own budgets... that was always viewed as the manager's responsibility." Although non ancillary budgets were based on past expenditure patterns, ancillary budgets "historically started with a zero base." Ancillaries used historical data as budget reference material. Since each unit was responsible for achieving a balanced budget, and any proposed price and fee increases had to be approved by a student advisory committee, each line item of an ancillary budget was closely scrutinized for any potential cost savings. If savings were possible, the line item amount would then be reduced to reflect this saving. Once the expenditure section of the budget was completed, strategies would be developed to cover the cost of the department's forecasted expenses. These funds, known as revenues, were obtained through a variety of student fees and cash sales. Once completed, the budget and all proposed fee increase would be reviewed by the appropriate student advisory committee. Numerous department heads commented on their awareness that if students did not feel that the costs were justified, they were unlikely to approve any requested fee increase. As one department head explained,

We looked at what our costs were going to be. We also looked at what the comparable service could be provided for in the outside community and

we struck a balance... students are very cost conscious... we always had to convince them that our costs were similar or lower than that of our competition... if we were unsuccessful in convincing them, they would not approve the proposed fee increase.

Since each ancillary department was responsible for operating a balanced budget, one in which revenues had to equal or surpass operating costs, each department tried to maximize its revenues and minimize its costs. When fee increases were not possible, costs had to be reduced. As one department head observed, "In the early 80s unionized staff in Food Services were made aware of the deficit situation in that department, and for the need to roll back wages. At that time inflation was running at double digits, and I believe that most staff in the non ancillary areas received an 11 percent increase. The Food Service staff agreed to a six and one half percent increase due to the deficit situation."

Once completed, an ancillary unit's budget continued to play an important role in each unit's day-to-day operations as each department head was responsible for ensuring that their department's actual revenues were offsetting its actual expenses. "Because of the expectation that we met the bottom line, we always had to pay attention to it [the budget], so I would review it on a very regular basis to determine that our costs stayed in line. If our costs were not in line, then we would just have to make adjustments." Another department head discussed how they constantly reviewed their sales and expenses with their staff: "We talk about what the sales were for the past month, and

then compare them to the year before. We then would talk about how we could increase them and things like that." Unit staff were also involved in monitoring costs: "They [staff] were aware of what they could and could not ask for, what we could and could not afford."

Unlike non ancillary units, obtaining additional funds from the vice president's contingency fund was not an option for these departments. If an ancillary department incurred an unexpected cost, it was their responsibility to resolve it. As one ancillary department head explained,

If something happened I had some money that I kept in my expense accounts that I could move around to cover the expense... if something terrible happened?... well, I have borrowed money from the University in the past, and paid it back... yes, I paid interest on the money I borrowed... I get no free money. It would be nice but I don't.

The interviews make clear that since ancillary units were never given funds from the vice president, they were also treated differently regarding their year end surpluses. While non ancillary departments had to hand over any left over funds, ancillaries were allowed to transfer their surplus to a reserve account set up on their behalf. Although they had to request permission to spend funds deposited in this reserve account, each department head viewed this reserve account as their department's "financial cushion." If these funds were not required to offset financial emergencies, the department would then be allowed to spend this reserve on equipment purchases and/or renovations for their department. Due to this policy, ancillary units did not appear to engage in the

dysfunctional year end spending patterns like those described by the subjects in the non ancillary departments. As one ancillary department head stated, "My whole department was involved in trying to save money through out the year as they knew if we could save, we would be able to spend it later upgrading our department."

These distinctions between the non ancillary and ancillary departments can be explained by the differences in these units' financial environment. The non ancillary units, dependent upon government funding, operated in a stable financial environment while the self-supportive ancillary units operated in a much more unstable environment. As previously discussed in the literature review, research has shown that organization's environment profoundly shapes its norms, values, and belief systems, and the situation at this university provides one more illustration of this pattern.

CURRENT FINANCIAL PRACTICES AND PHILOSOPHIES

As was outlined in the archival study, the division is currently operating in a much less stable environment than in the past. The interview subjects spoke extensively about this change. The data collected during this portion of the study report not only that the division's members perceive current financial practices as different from those in the past, but that these differences are a direct result of the government's decision to reduce funding levels to post secondary institutions.

All of the subjects interviewed discussed the impact of the reduction in

government funding to the university. The interviews clearly express an awareness that change is inescapable. As noted by one respondent, "At fifteen per cent less government money, which is nearly \$10 million dollars, they say OK, now we understand that there has to be some fundamental changes." There was general consensus that the changes are a direct result of the reduction in operating grants that the institution is now receiving.

The following two quote summarize the awareness of the need to change:

We are now going to have to organize our services in different ways that are more efficient and effective in the delivery of services. To a degree I think the cost reduction is enforcing us to become more efficient... we have to look at more radical approaches in the way we deliver services in order to survive in the new year.

I think that there is some willingness to look at doing things differently now... you have to remember that the whole structure from the top to the bottom had a level of comfort, their jobs were never at risk if things didn't work out... this idea is now beginning to change.

Many of the subjects also gave the University of Windsor's Report of the Strategic Task Force, Administration, and Services (1995), colloquially known as the Price Report, and the division's Strategic Plan as examples of how the university is dealing with its funding reductions.

The Price Report

Not only did many of the subjects believe the formation of the task force and the corresponding completion of the Price Report were a direct result of the reductions in funding levels but that they also symbolized some sort of turning point for the division.

As one subject noted, "I think it made people aware of changes to come, new direction. Prior to this things seemed to just go along as they always had...I think you would have to be a little naive to think there was no direction in it." Although previous reports had been completed on the division, there was general agreement that the Price Report was different. Not only did the respondents believe that the report was a direct result of the funding reductions, but unlike reports in the past, they perceived that its recommendations were likely to be implemented. As one respondent noted,

I was told by my staff who have been here for years not to worry about it. That there is a room somewhere full of these reports that have been written over the years... and that in the twenty years that they have been here nothing has ever changed. But, I'm not so sure that this is still true,... the university is now looking for money.

There appears to be objective support for this assumption. As reported in the archival study, the president of the university made an agreement with the Board of Governor's Resource Allocation Committee that as part of the University's response to the announced funding cuts by the government to post secondary institutions, he would form a task force to analyze how the division could reduce its operating costs.

As mentioned in the previous section, the Price Report made 175 operational and/or cost cutting recommendations. Many of the respondents working in non ancillary departments expressed feelings of animosity towards the recommendations. There was anger that the committee had recommended the elimination of some positions. As one director stated, "having people's jobs identified as being redundant has made people

fearful and angry." Others commented on how the report "was not helpful," as it had only heightened employee morale problems within their departments. As another subject noted,

"It has been hard on the staff...the whole atmosphere has changed as to what it was five years ago. Its recommendations have made things more difficult for the staff to feel safe and comfortable in their positions."

Subjects working in the ancillary departments reported a more ambivalent reaction to the report. Unlike the non ancillary areas, the majority of the reports' recommendations for these units focused on items like structure, policy, and procedures. There were few financial recommendations. Ancillary subjects believed "there wasn't anything really of what I would call a major substantive nature in the report." These respondents perceived that the report had much more of an impact on non ancillary units than on themselves. As one subject explained, "We have always operated in a mode similar to that of the Price Report. We on a regular basis complete an analysis on everything we do: systems, policies, regulations, fees, funds. In addition to that we are always examining the effectiveness and efficiency levels regarding particular individual jobs, roles and responsibilities...this is new for the other departments."

The Division of Administration and Finance's Strategic Plan

The majority of the interview subjects felt that the division's new strategic plan

was also a direct result of the funding cuts. Although there were two distinct responses to the plan, the responses differed not by department, but by rank. As outlined in the archival study, the vice president and his directors developed the division's strategic plan over a period of several months. The majority of the directors interviewed believed the plan to be an asset to the division. "Overall, it is very positive. What the strategic plan helps us to do is focus our financial priorities and rethink some, to be honest with you." A minority of the directors expressed some reservations about the plan as they were afraid that their managers and staff would view it as yet another cost cutting tool. As one director noted, "We run some big risks of suddenly pulling a strategic plan out of the bag now... we have to do a fairly decent job of suggesting to people and making them believe it, that the strategic plan isn't a veiled financial threat."

This concern appears to have validity as the assistant department heads and managers perceive the strategic plan as little more than another cost cutting mechanism. The following respondent's comments is representative of the majority of the group's general feelings regarding the division's strategic plan:

I am hoping it will have a positive impact... it talks a lot about customer services but I think the real issue is financial--its about saving money... up to now it has been of no benefit to me... but, I suspect that it will have little impact.

While the general feeling of the subjects was of reserved wariness, others voiced outright cynicism. Comments ranged from "I am very cynical about it," to "It's nothing but a lot of air balloons." For many people at this level, the prevalent issue was one of job security. Everyone was conscious of the institution's need to cut costs and that "we [the university] are downsizing for the first time." As one respondent stated:

They want us to talk about strategies, vision?... My God, I'm not even sure that I am going to be here next year and they want me to strategize about quality issues and customer service. I have kids, mortgages and cars--that is what I am worried about. Where am I going to go if the University lays me off?

Budgeting Changes

During his interview, the vice president discussed how the reduction in government funding levels has changed the budgeting process at the divisional level. As previously outlined, each department in the past had basically been handed their annual operating budget. While budgeting was discussed between the director and the vice president, it was always previously done on a one to one basis. The vice president described how this practice has now changed, "Last year, for the first time, we [directors and vice president] did the budget together. I believe that in order to develop a budget that hangs together, you need to be able have transparency among departments...what is going on and why...this is especially true in a downsizing mode...I needed to build consensus in order to take the pieces out where it makes the most sense."

Budgeting and Financial Practices in Non Ancillary Departments

This budgeting philosophy clearly had some impact. Indeed, all of the directors working in this area spoke of this change in the budgeting process. Many noted "there is more sharing of information." As one director stated, "everybody used to do their own thing, now we not only have more say in our own budgets but also in each other's budgets." There was a general consensus that this change in budgeting practices was due to the reductions in the division's operating grants. "With the severe cuts, things have changed...I have a lot more involvement in budgeting process than I had in the past. Rather than being given my budget, he [current VP] told me to give it to him! ...we then discussed it as a group [directors and VP]...this is very different than in the past." While many view this as positive, claiming that, "I and my department felt more involvement in the process...we are being treated as participants now," others are having more difficulty dealing with the change as they believe "budgeting is the VP's responsibility, not mine!"

Seven of the nine non ancillary subjects interviewed also commented on how much more difficult it now is obtain funds that were not originally budgeted for. "Historically, we have always gone to the vice president when we needed additional support [funds that were not originally budgeted for]. He would give us the money...there's a contingency fund somewhere..." Although among some there is still the perception that "there is still no real problem here, because we have a lot of money in the bank somewhere," respondents also noted "how we now have to beg" for additional

funds. Many non ancillary respondents expressed their frustrations with this new policy, noting that "before the cuts, we never really had to ask, we just spent it...it is just absolute lunacy what we now have to do to get money." Some gave examples:

The rigmarole we now go through to get replacement staff... We are talking about \$10.00 per hour for a week for somebody. It takes three to four days to get the approval by the time we write a memo, send it to the director, then it has to go to the VP and it is often gone for two days before he sees it. By the time he finally signs the piece of paper that says we can spend \$400 the person is often back to work.

Today, justifying a relatively minor expenditure, if it is outside of my department's budget,... well lets just say its much more difficult. It seems to me we are now spending an excessive amount of time and effort justifying and looking at different approaches for a relatively small amount. I would prefer to say let's just do it. That's what we did in the past.

While the vice president acknowledged that there is a contingency fund for emergencies, he also spoke of how he is currently trying to wean the non ancillary areas away from their past dependency on this fund. As previously noted, the past practice was for directors to utilize this fund in order to cover unexpected day-to-day operating costs. As one director noted, "people never had to manage before. It is not hard to manage at the University when you have money rolling like oranges." The vice president discussed how he is currently trying to change this perception by restricting directors' access to this fund.

We have a contingency or carry-forward to cover unexpected costs... Traditionally, they [directors] were given 100 per cent of the money needed to cover any of their unexpected costs. I'm now saying to them, why should I do that [totally pay for the expense]? If you want additional

money, then tell me how you are going to help pay at least some of it back. Although that isn't well ingrained in the process yet, it will be soon.

The directors recognize this new policy, but do not appear to be enthusiastic about it.

"He [vice president] not only wants more facts and details than my former boss [former vice president], but he also wants to know how I am going to help pay for it. My old boss never asked me to help cover the cost of the expense!"

Budgeting and Financial Practices in the Ancillary Departments

Strikingly, in the interviews conducted with subjects working in the various ancillary units, none of these subjects discussed the university's contingency fund nor their access to it. As previously noted, ancillary departments do not have access to government operating grants. Therefore, they are not eligible for receiving additional funds from the vice president. Rather than discussing how they approach the vice president to "resolve their financial problems," each spoke of their personal responsibility for their department's financial destiny. "We have to balance our budgets. If we get an unexpected cost, it is a major problem as we have to find a way to resolve it ourselves." Another commented, "There's no pot of gold for us [ancillaries]. If I have a financial problem, I have to figure how to solve it." A department head responsible for an ancillary area noted, "we had an unexpected problem... an internal loan was arranged for us, which we are now paying back over a number of years and that [loan payment] cost, including the interest charges, has to be incorporated into my current and future budgets."

Since ancillary departments have never received government funds, their budgeting and financial practices have thus not been directly affected by the recent funding cuts. However, they are being affected on an indirect basis. Ancillary departments are now being required to contribute to the University's general operating fund. Ancillaries "have just gone through an external review by the KPMG auditing firm and they have recommended cost allocations to each of the ancillaries for the services being provided by the University's Finance and Human Resources departments." In addition, there is general acknowledgement by the ancillaries that "we will also be asked to contribute to the University's general operating budget." These new costs have increased the ancillary departments' level of financial responsibility. Not only are ancillaries required to be financially self-supportive, but they are now being asked to assume more of the university's general operating costs while still maintaining a balanced budget. The ancillary subjects general sentiments regarding this new policy are well summarized in the following comments:

I now have all kinds of different fees which I wasn't paying before. For example, I now have to pay fees to accounting, finance, and payroll. I am sure that these new charges are because of the University's financial problems. These fees are a joke... I feel in many ways they are very unfair. In addition, a lot of the work that these departments did for me in the past, has now been passed back to me. Why am I being asked to pay for services that they are no longer performing for me? ...I'll tell you why... it's only because they [administration] are now looking for money!

Respondents working in ancillary units, not only discussed how the reductions

were impacting their departments, but also commented on how the reductions in funding "may force the other departments [non ancillary areas] to become more accountable."

Ancillary areas viewed this potential change in the non ancillary areas as a positive result of the funding cuts. All of the ancillary subjects spoke at length on this issue. The following two comments can be used to summarize their discussions:

I think that in general there could be a lot of merit from looking at the way that they [non ancillary departments] do business... and trying to perhaps operate more of these departments in the way that ancillary departments have been required to operate for a number of years...

I think that restructuring in that area [non ancillary] may now happen. I think that by restructuring, and really questioning if the job they perform is useful, can they do more, is it the best use of resources,... which is what ancillary departments have always had to do,... this [government funding cuts] may now force them [non ancillary areas] to become more responsible.

There appears to be some validity to these assumptions. An example of this are the changes that have occurred in the past year in Duplicating and Document Services.

Until a year ago, Duplicating and Document Services was considered a non ancillary department. Its operating budget was funded with governmental operating grants. The unit's manager described the University's previous philosophy regarding his department:

It was a service-oriented department and if it did make money, fine; if it balanced, fine; if it broke even, fine; if it lost money, fine. We were known as a service department...I was here to keep the place open, keep it in good standing, don't cause any waves, and do the best we can... of course we never made any money, we never had a profit,... we couldn't, we had too

many staff... in the seven and a half years that I have been here, we have always lost money. But there were no layoffs... the University had a policy of no layoffs then... for me to balance the budget, I would have had to lay off two people, and he [former vice president] always said no.

Due to the reductions in government funding, and the recommendation by the Strategic Planning Task Force, Administrative and Services to "close the doors" on Duplicating Services, the new vice president decided he could no longer afford to subsidize this department with government operating grants. It would have to either eventually close or become financially self-supportive. Based on this decision, the vice president transferred Document Services to his ancillary department named University Services. A thorough review of this operation was then conducted by the Director of University Services who is responsible for all ancillary departments on campus. He outlined the process:

In looking at that operation it was very clear to me that there was a tremendous customer need. Universities are factories for documents and the alternative is to say there are places off campus in the private sector where faculty could go but what is the cost of that? We decided that we can do it better, faster, cheaper, and retain government operating funds internally within house that will basically circulate instead of simply going out. While there is a definite need for the operation, it must be also become economically viable.

Based on this analysis, the decision was made to enter into a partnership with Xerox. At no initial cost to the university, Xerox replaced the department's outdated printing presses with modern, highly automated duplicating equipment. In addition, the university would also receive technical and marketing expertise from Xerox. In

exchange, the university entered into a profit sharing agreement with Xerox. When interviewed in the spring of 1996, six months after the University established the partnership with Xerox, the unit manager noted how "we are in different times now and I now have to watch every dollar. Xerox is not here for their good looks. They are here to make money."

SUMMATION OF PAST AND PRESENT FINANCIAL PRACTICES AND PHILOSOPHIES

The interviews outlined two separate sets of financial practices and philosophies within the division. While the departments of Human Resources, Finance, Physical Plant, Campus Police, and Computing Services have similar financial philosophies, the ancillary department, known as University Services, consisting of Residence Services, Food and Hospitality Services, Health Services, CAW Student Centre, and Duplicating Services operates under a different set of financial assumptions. As previously outlined, government operating grants cover the cost of operating the non ancillary departments, while the ancillary units must be financially self-supporting. As reported in the literature review, an organization's fiscal environment is one of the most important variables involved in the formation of an organization's culture(s). The archival portion of this study reported an objective link between changing government funding levels and changing financial practices at the university. The data collected during the interview

phase of this study has not only outlined how the acquisition of fiscal resources affects financial practices but also how it impacts an organization's culture(s).

The subjects' responses to the interview questions regarding budgeting and associated financial practices outlined two distinct subcultures within the division, one within the ancillary units, and another within the non ancillary departments. Their responses also described how the recent changes in government funding is impacting on various norms, values, and beliefs of these subcultures. While the ancillary units, which have been least affected by the funding reductions have for the most part retained their previous culture, the non ancillary subjects, perceive changes in their basic assumptions. The non ancillary departments' changing norms, values, and beliefs, have been manifested most clearly in the case of Document Services. The previously discussed changes that have recently occurred in this department clearly outline how an organization's financial environment shapes its norms, values, and beliefs.

OTHER BASIC CULTURAL ASSUMPTIONS

Not only is there evidence to support the connection between the environment and the budgeting and financial elements of the division's subcultures, but the interviews also outlined how fiscal resources impacts upon other norms, values, and beliefs in the ancillary and non ancillary departments. The interviews revealed relationships not only between various basic assumptions and the division's financial environment, but also

noted how the changes in this variable tended to change these assumptions. Examples of this can be seen when one examines the division's assumptions regarding performance and even more general abstract concepts such as time, space, reality, human activity, and human nature and social relationships.

Assumptions Regarding Performance

Overall there is a general assumption that the division places little focus on performance. As the archival study noted, while all managerial staff salaries within the division are based on the individual position's job content, there is no wage recognition for an individual's level of performance in the position. In addition, the division has no formalized employee performance evaluations. Not only are there objective data for this basic assumption, but the respondents expressed beliefs match this objective information. The general consensus of the subjects interviewed was that the division placed little value on either unit or employee performance.

In the past, each of the directors in the division, and all of the department heads responsible for an ancillary unit, were responsible for developing formalized goals and objectives for their particular departments. One subject outlined the process.

We [director and vice president] would sit down and set out my goals and objectives for the year. He [vice president] would establish what projects and things we should work on and then they would be laid out in a framework that had a spreadsheet with spaces for comments and evaluations. There was also a space for explanations for why you didn't achieve what you were suppose to achieve.

Although this process was completed on an annual basis, several of the non ancillary subjects noted that on more than one occasion, they had never met with the vice president to complete the evaluation portion of the process. As one respondent noted, "We were so busy some years,... that we just never got around to the evaluation phase of the form." Even though this evaluation process was in place, none of the non ancillary subjects perceived this to be a performance appraisal mechanism. Their responses to the question regarding performance evaluations makes this quite clear. In the words of one respondent working in the non ancillary department, "No we were never evaluated on performance." Another commented, "No one ever gets fired here," and still another gave this example:

I have one or two people in my department who have been here over 20 years and everybody on the campus knows that they are not productive, they do everything they can to avoid doing useful work... but they're still here.

As previously discussed, the majority of the non ancillary subjects believe the vice president's to be responsible for the completion of their department's budget and to resolve any of their financial problems. Therefore they see little need for being evaluated on their financial performance. As one subject noted, "I don't get paid to make those [financial] types of decisions... he [vice president] does."

Although this is still the prevalent belief in the non ancillary areas, this perception is beginning to change. Many of the non ancillary subjects commented on the vice

president's decision to move them towards a group decision making process when preparing the division's annual operating budget, and also on his efforts to wean them away from his contingency fund. As one director noted, "He [vice president] is creating a situation in which we [directors] are going to be assuming more of these financial responsibilities."

While none of the non ancillary subjects remembered receiving an evaluation, all but one of the ancillary subjects noted they have always been regularly evaluated. While there was general acknowledgment that "there are no formal appraisals like you would see in the private sector," non ancillary respondents noted that "we [ancillaries] are always evaluated on the financial performance of our departments." But even within this department, there was recognition that rewards are unrelated to performance. As one respondent noted, "It [performance] is certainly not salary or wage driven...there is no performance appraisal system that rewards one on merit..."

The lack of emphasis on performance can be tied to the influences of the fiscal environment. When there is a guarantee of sufficient fiscal resources, an organization does not need to place much emphasis on performance as unit and/or employee performance levels are not tied to the unit's ability to generate operating resources. As previously discussed, the non ancillary units operated for many years in an environment that provided them with sufficient funds to cover their operating costs regardless of how effectively or efficiently their departments operated. Since there was no need to worry

about covering their costs, there was little need to be concerned with the level of either unit or employee performance. This was not the case for the ancillary units. Since each of these units was responsible for generating the funds needed to cover their operating costs, performance was a much more important factor. If these departments did not provide the services that their customers requested or needed in a cost effective manner, their customers would not utilize their services. If their customers did not use their services, the ancillary departments did not receive the fiscal resources necessary to operate their units.

As discussed in the literature review, the Hofstede et al. (1990) cultural model notes that it is an organization's financial environment which determines an organization's tendency to focus more on being either employee or job oriented. Organizations operating in market competitive environment and whose members are evaluated on profits and other financial performance measures tend to be much more job-oriented. Organizations working in stable financial environments, with few financial performance measurements tend to be more employee-oriented. This explains why many of the respondents in the non ancillary departments noted a higher concern for people than those working in the ancillary units. Although the interview respondents working in the ancillary units also expressed concern about their employees, these units, due to their economic environments, must balance their concern for their employees against their need to maximize employee performance levels. Until very recently, a job in the non

ancillary departments often provided employees with a life long job opportunity. As one respondent noted, "Once you got in here, you were here for life, it was a job for life." Another subject noted that in the past, job candidates being interviewed for positions within their department were often told, "this is a life time job." The non ancillary units have historically not only been able to provide their staff with life-time employment but to also "give everyone the benefit of the doubt even if to the extent of hurting the organization."

Due to the reduction in funding, this belief is now changing. As one non ancillary respondent noted, "We are facing serious times and we have to get down and dirty, and deal with the issues at hand." Many of subjects working in the non ancillary departments also noted changes in the division's philosophies during the past year. An example which was given over and over again, was the University's new position on staff layoffs... "we are downsizing for the first time." In the past, the non ancillary units reportedly had never laid anyone off: reductions in staffing levels had always been accomplished through attrition. But since the funding cuts, the division has laid off numerous part-time workers and thirty-eight full time employees. Several subjects discussed how the division appears to be moving away from its previous easy going attitude regarding performance issues. As one subject stated,

The private sector has been involved in re-engineering, downsizing, rightsizing, for a long time because it had to in order to survive. The University hasn't had to do this in the past. But now due to the financial components of the government's cutbacks, the division is going to have

start doing the same kind of thing as the private sector has been doing.

While many of the non ancillary subjects appeared to be upset with implementing an employee layoff policy, there was little discussion on this issue in the ancillary units as subjects working in the ancillary units did not view this policy as anything new. None of the subjects working in the ancillary units spoke of the opportunity for life-time employment as staff have been laid off in these units in the past. For example, during the past five year period, departments such as Food and Hospitality Services have not only eliminated positions but have also laid off staff. Due to their financial environment, ancillaries have never had the financial ability to carry unproductive employees. As one respondent noted, "I have never been able to afford to carry people who do not perform."

The above discussions highlight how a change in environment often has a dialectical impact on both organizational performance and on the organization's management of its human resources. As one respondent noted, "everything is much more results oriented now...it's now get it fixed, do it now, and who cares what the human cost is...is this a result of the recent cuts?...I think so."

Assumptions About Time

According to Schein (1992), an organization's culture(s) is often reflected in its basic assumptions regarding time. Although the researcher did not ask particular questions regarding this, the data collected during the interview phase of the study

revealed two distinct assumptions regarding this concept. Subjects in the ancillary units primarily focused on the present while the non ancillary respondents tended to talk more about the past. In addition, there appeared to be a greater sense of urgency in the ancillary units when compared to the non ancillary departments.

Ancillary subjects often spoke of the present, how to accomplish current fiscal goals and objectives. Few referred to the past. As one ancillary department head noted, "How well we did financially last year doesn't matter. It's what we do today that's important. If we don't perform we don't get the sales, if we don't get the sales, we don't survive. We don't get a second chance." Another, reviewing their financial day-to-day procedures, stated, "I check my sales and expenses every day. If I see something I don't like, like dropping sales, I speak to the staff right away." The ancillary subjects' answers regarding questions on the budgeting and financial processes of these departments also emphasize their focus on the present. A department head, in discussing the budgeting process, noted, "It [budgeting] involves a lot of different processes every year to how I come up with the final budget. Just because we spent X dollars last year on a line item, doesn't mean that we will automatically spend that much again this year."

While non ancillary departments also pay attention to the present, these departments appeared to be more oriented towards the past. Unlike their ancillary cohorts, the non ancillary subjects made numerous references to the past. Many of the non ancillary subjects perceived that traditional practices were highly valued and any

proposed change "would have to be closely evaluated prior to its implementation." As one non ancillary subject noted, "Innovation?...how I perceive it?...if it is not broken, don't fix it. If it has been running OK for all these years, why go in another direction?" Another put it more bluntly, "I see this place as fairly risk averse. It values how things have been accomplished in the past. Anyone proposing changes to the way things have been done better make sure that the proposed changes are successful." Respect for traditional practices was coupled with the belief that "projects need to be done slowly," beginning with a "thorough review." One non ancillary respondent gave an example:

This is a simple project. It is not rocket science... We started talking about the concept for about 1 1/2 years ago. We have now gone out for proposals three times. Finally, we just finished selecting a vendor. This program is costing us zero dollars, and yet the decision and review process took about 18 months... no, it's still not implemented.

Although the above noted values, norms, and beliefs regarding the assumptions of time are still present in the non ancillary departments, four of the non ancillary respondents noted how these assumptions are beginning to change. As one respondent wistfully observed, "Things aren't like they used to be...things were better before,... we never used to worry about how we were going to pay our bills...but that's changing now..."

The distinctions between the ancillary and the non ancillary departments' basic assumptions regarding the concept of time can once again explained with reference to the literature. Research has shown that organizations operating in unstable, turbulent

financial environments, like those of the ancillary units, tend to focus primarily on the present as their environment often takes unpredictable turns. Due to the high level of unpredictability, past practices are seldom of any value to members working in a turbulent environment. These assumptions are very different from those developed by organizations, like those of the non ancillary units, which have a history of operating in stable environments. Due to their ability to depend on receiving predetermined amounts of money on a regular basis, traditional practices tend to play a much more important role (Khandwalla, 1977).

Assumptions About Reality and Truth

Research has shown that a fundamental part of every culture is its set of assumptions regarding what is real and how one determines or discovers this. What is defined as physical, social, or individual reality is itself the product of social learning and hence, by definition, a part of a given culture. But, according to Schein (1992), cultural assumptions are assumed to have relatively less importance in the area of physical reality, which in Western society is assumed to operate according to natural laws as discovered by the scientific method. Therefore, an organization's cultural assumptions become relatively more important in the area of social reality. Schein's cultural audit model utilizes an adaptation of England's (1975) moralism-pragmatism scale for uncovering cultural assumptions regarding social reality within organizations (appendix 7).

Based on England's scale, ancillary departments tend to see truth and reality in a more pragmatic way than non-ancillary departments. As one department head noted, "We do what works." Another describes the process in more detail, "We often try something out and then evaluate how it works. If it works, great,...if it isn't successful, we'll try another approach." Ancillary subjects talked extensively about the importance of customers. As one respondent noted, "We are basically entrepreneurs. Without our customers, we don't exist...we need them ... if they don't spend money we can't pay our bills." According to Hofstede et al.'s (1985) cultural audit model, the tendency for a unit to focus its attention on customers is a prevalent characteristic of a pragmatic unit. Hofstede also notes that pragmatic units tend to operate in competitive markets, be entrepreneurial in spirit, and are often service delivery units. Overall, each of the ancillary units clearly exhibit these additional pragmatic characteristics.

Non-ancillary areas focused less on a pragmatic approach and more on what England refers to as "pure dogma" and "revealed dogma." Pure dogma is defined by England as a practice that is always completed in the same way, while revealed dogma is "wisdom based on trust in the authority of formal leaders" (Schein, 1992: 102). As previously outlined, the non ancillary subjects tend to rely on proven past practices to resolve current financial issues. Eight of the nine non-ancillary subjects interviewed also noted that while it was their responsibility to bring financial concerns to the vice-president, it was the vice-president's ultimate responsibility to resolve any financial

problem.

According to Hofstede et al.'s research, an organization has either a pragmatic dimension or a normative dimension. Characteristics of a normative dimension are organizations which are responsible for implementation of rules and/or those operating under a monopoly. Due to the function of the department, the primary role of Human Resources, Campus Police, and the Department of Finance is the implementation of rules. While this is not the primary focus of either Physical Plant or Computing Services, both of these non ancillary units meet the second of these criteria: operating under a monopoly. Although not true monopolies, none of the non ancillary departments face competition for their services on campus. It should be noted that this is not the case for the ancillary units. Although no ancillary unit faces direct competition on campus, each face a variety of local competition. Although Residence Services, for example, provides the only student housing on campus they have many competitors as students do not have to live on campus. Students may choose to live in one of the university's residence dorms or at one of university's affiliated colleges or fraternities. In addition, Residence Services must also compete with the local community's landlords for students.

The differences in the ancillary and non ancillary basic assumptions regarding reality and truth and between the dimensions of pragmatic versus normative can be explained, at least in part, by the influence of these departments' fiscal environments. It can be argued that the ancillary units' pragmatic view has evolved as their members

developed mechanisms to cope with an unstable fiscal environment. As previously discussed, these units are financially dependent on a combination of cash sales and student fees. Both of these revenue sources are highly unpredictable. In order to obtain student fees, ancillaries must convince student advisory groups on an annual basis that their services provide a level of value that is comparable to the fee being requested. Not only does the membership of these student advisory boards change from year to year, but the students' priorities and perception of value are constantly changing as well. Revenues from cash sales also have had tendency to fluctuate from year to year depending on the size of the departments' customer base and upon the level of competition from local vendors. Therefore, due to their turbulent financial environment, the ancillary departments have developed a philosophy that tests the value and truth of ideas by their practical consequences. As one ancillary subject noted, "we do what works." As previously discussed, the non ancillary units have traditionally operated in a much more stable financial environment. Although their current environment is now less stable, these departments are still notified by the government well in advance of any upcoming changes to their operating grants. Due to this relatively stable environment, the original practices and policies set out by the management of an organization continue to remain relevant as long as the environment does not change. As outlined in the archival study, the non ancillary departments enjoyed an extended period of financial stability. Since their environment was financially stable, the policies and procedures which were initially

developed in these areas remained intact, and eventually evolved into traditions. Over time these traditions were written down as departmental policies. As one non ancillary subject noted, "There is a rule for everything!" In addition, since these practices were originally designed by senior management, and are perceived as having stood the test of time, it should come as no surprise that the members of these units tend to believe that it is senior management's function to develop policies and resolve problems.

Assumptions About Human Nature and Social Relationships

As discussed in the literature review, in every culture there are shared assumptions about what it means to be human, what our basic instincts are, and how we are to conduct our relationships with one another. At the organizational level, the basic assumptions about the nature of human nature--that is, how employees and management are viewed,--have evolved from "a classical notion of humans as rational-economic actors to humans as social animals with primarily social needs to humans as problem solvers and self-actualizers with primary needs to be challenged and to use their talents" (Schein, 1992: 125). Motivation theorists, such as Maslow (1954), organized these assumptions into a hierarchy: if the individual is in a survival mode, economic motives will dominate; if survival needs are met, social needs come to the fore; if social needs are met, self-actualization needs are released. McGregor (1960) observed that within this broad framework an important second layer of assumptions was held by managers vis-a-vis

employees. Managers tended to hold one of two sets of assumptions regarding employees. Theory X managers assumed that people are lazy and must therefore be motivated and controlled while Theory Y managers assume that people are basically self-motivated and therefore need to be challenged and channelled, not controlled. Since these assumptions about employees often become imbedded in the organization's incentive, reward, and control systems, Schein notes that an examination of an organization's policies regarding the correct level of participation and use of authority can also reflect the different assumptions that management has made regarding the nature of their subordinates.

Working within this framework, the division's core assumption about human nature appears to be one in which managers assume that their subordinates are incapable of responsible and creative decision making abilities. Due to this fundamental belief, the division's managers tend to assume that their staff must be motivated and controlled. These basic Theory X assumptions about human nature are manifested in the division's emphasis on hierarchy, its bureaucratic nature, and senior managements' paternalistic assumptions regarding their employees. However, while these cultural characteristics are prevalent through out the division, they tend to be less evident in the ancillary units.

The emphasis on hierarchy is evident both though the objective and subjective data collected during the interview phase of the study. Objectively, the emphasis placed on hierarchy can be seen most obviously when one examines how office space within the

division is assigned. As each interview was conducted in each subject's personal office, the researcher was given the opportunity to observe the work spaces of many of the division's employees.

Office space is apparently assigned according to an individual's rank in the division. Every subject interviewed had their own personal office. Of all the subjects, the vice president had the best office. It was the largest, located on a corner of the top floor of the university's main administration building. The office has floor to ceiling windows which overlook the city's skyline and a large river. Although not as large as the vice president's, each of the directors also have offices with views. While many of the department heads, assistant directors, and managers interviewed had windows in their offices, few had views. It was also noted that while the majority of unit managers had offices, they were often small, and located in areas which did not have access to natural light. While it was observed that some of the support and secretarial staff had their own work cubicles, few possessed their own office. The majority of the clerical staff worked in large, open areas that permitted supervisors to tightly manage and control this work group as the physical layout of the space permitted them to not only observe who might need assistance, but also who was not working.

As Schein (1992) notes in his cultural audit model, the assignment of office space often reflects an organization's cultural values and assumptions. Because buildings and the environment around them are highly visible and relatively permanent, organizations

often attempt to symbolize important values and assumptions through both their design and assignment of space within these facilities. The distribution of office space within the division of administrative and financial services not only symbolizes an employee's rank within the division, but also reinforces the assumption that there is a ranking or hierarchical system operating within the division. As the literature notes, the assignment of space has often been used as a subtle tool in which to guide and channel behaviour of members of organizations (Berg and Kreiner, 1990; Gagliardi, 1990).

In addition to this objective evidence, there is also subjective evidence to support the proposition that the division values a hierarchical chain of command. Deference to an individual's rank within the division was an issue that over fifty percent of the respondents touched upon in their interviews. As one interview subject stated, "it's understood that you never go over your boss's head... if you do, you better be prepared for the consequences." Another noted, "We have to show extreme loyalty to the people at the top... it puts us in a difficult position if we disagree [with them]."

The hierarchical nature of the division was also observed when the subjects described the budgeting process and various other financial procedures. Peter Block, a leading managerial consultant, notes how the review of an organization's financial policies and practices not only outlines the degree of hierarchy operating within an organization, but also often provides some of the best indicators for assessing senior management's basic assumptions regarding the issues of power and control.

The right to manage the money of others is in some ways more powerful than the right to fire somebody. Firing happens so infrequently that it lacks day-to-day currency. Controlling dollars, because of the frequency and immediacy of the act, is the operational definition of power in our institutions (Block, 1993: 140).

According to Block, control means that there is a clear line of authority.

Decisions about policy, strategy, and implementation are the domain and prerogative of senior management. People at the middle and the bottom exist to execute and implement. Control is often achieved through a collection of policies and rules that are developed and enforced by senior management or their delegates.

Due to the hierarchical nature of the division, a clear line of authority exists within it. In addition, the general consensus of the respondents was that decisions tend to be top down, and that only the most senior levels of the division have, and should have, the right to make important financial decisions. As one director noted, "I think that [top down decision making] was the model that the University used for a very long time in a lot of departments." As previously outlined, the vice president made the majority of the financial decisions including finalizing each department's annual operating budget and the resolution of any associated financial difficulties in the past. Although this practice is now changing under the new vice president, senior level managers still believe that "it is my job to work on the budget." As one director noted, "when it comes to looking at any of the budgetary priorities that would impact our areas, there may be some funnelling up from there [hourly staff], but to be honest, it is really minimal." Although there is

recognition that "in some cases the front line staff have a great many good ideas to offer us," the current prevalent belief among directors is that financial decision making is not only a function of their position within the organization, but also a right. As one director noted, "I told my staff what was going on ... so I got input, but I told them that the decision was mine to make."

While some of the senior executives discussed the problems of "positional power influencing financial decisions," the interview data clearly revealed that the right to control is still a core assumption. To ensure that their decisions are implemented and enforced, senior management have developed a series of policies and procedures. Many mid level managerial respondents, especially those working in the non ancillary departments, commented on the importance placed on following the division's rules and procedures. As one non ancillary respondent noted, "There's a policy for every eventuality." Another stated, "God help you, if you don't follow policy...they [senior management] care more about us following policy than on our results." Several of the respondents reporting to non ancillary directors also noted how they themselves are often left out of the decision making process. As one respondent noted, "I find more out by reading the local paper."

Unlike their peers working in the non ancillary areas, subjects working in the ancillary units clearly have a different set of belief systems regarding the issues of power and control. While non ancillary departments believe that the division's policies and rules

must be strictly enforced, ancillary subjects perceived these rules as general operational guidelines. As one ancillary subject noted, "We are much more entrepreneurial than the other departments... we are focused on results,... we operate under policies, rather than rules." While it is the vice president and the ancillary director who ultimately approve each ancillary units' operating budget, it is each ancillary unit's department head that develops the unit's annual operating budget. As the director responsible for these areas noted, "it is each manager's responsibility to develop their own budget." The responsibility for developing their own unit's budget, has provided mid level managers working within ancillary units with a sense of financial control. As one incumbent noted, "At least we have the power to control our own budgets."

Although none of the division's hourly staff appear to have direct input into the budgeting process, many working in the ancillary units are involved in the day-to-day decisions regarding the operationalization of their unit's budget. One department head described the process involved:

Well, I [department head] go through the whole budget with each person, and I report to each unit what their sales are for that month and what they were the year before and then we talk about ways of either increasing sales or what we should done about next year's sales and things like that. I also involve them in my expenses a lot so that they know that I have \$4,000 for this and we are now have \$3,300 left or whatever. They are then aware of what they can and cannot ask for.

This level of hourly staff participation was not mentioned by any subject working in the non ancillary departments. While some non ancillary directors noted how "in a lot

of cases they [hourly staff] have felt that their views have never really been listened to or appreciated," others do not believe that their staff are interested in being part of the decision making process. As one non ancillary director noted, "When I first started here, I used to ask for their [hourly staff] opinions on what we really needed and such as far as the budget was concerned. I would try to get them involved as much as possible but they never seemed to be interested."

These differences between the non ancillary and the ancillary respondents' comments outline their perceptions regarding the characteristics of the departments that they are working within. These characteristics have been used to describe what Burns and Stalker (1961) referred to as mechanistic and organic systems. Mechanistic systems are organizations that stress rules, policies, and procedures; specify techniques for decision making; and emphasize the development of well documented control systems backed by a strong middle management and supported by a centralized staff. Organic organizations tend to be much less bureaucratic in both appearance and functioning. These organizations emphasize results. There are few procedures, and those that do exist are not as formalized. The organization relies on the judgement of its personnel, and places a greater emphasis on its front line staff to accomplish its goals and objectives. Based on Hofstede et al's (1990) cultural audit model which utilizes Burn's and Stalker's systems theory to determine if an organization tends to be either process versus results oriented, it appears that the non ancillary departments are mechanistic systems and

process oriented, while the ancillary units tend to be more organic systems and are results oriented.

The characteristics of a mechanistic system have also been used to describe bureaucracies. The term bureaucracy was first developed by Max Weber. Weber suggested that large organizations would thrive if they relied upon legal authority, logic, and order. Weber argued that the necessary components included a division of labour, hierarchical control, promotion by merit, career employees, and administration by rule. He named this design "bureaucracy" (Ritzer, 1992).

As first outlined in the archival study, the division, like that of many of today's organizations, has each of the components Weber required for a bureaucracy. This too is the view of the subjects who believe that they are working within a bureaucratic structure. Comments ranged from "this is a bureaucracy," to more negative ones which included "this is such a bureaucratic organization!" As one non ancillary respondent noted, " We are a bureaucracy... we are structured like a bureaucracy, ... and we operate and respond like a bureaucracy."

While there are positive aspects associated with being bureaucratic, there are also many negative traits associated with this style of management. As Schermerhorn, Templer, Cattaneo, Hunt, and Osborn (1993:342) note, the focus on specialized labour often tends to create overspecialization which stimulates a divergence of interests that leads to conflict. The development of a formal hierarchy often creates inflexibility,

requiring the need to follow official channels. Conformity to the organization's ways can become detrimental to both the organization and to its employees as rules become ends in themselves. The resultant political systems often become mechanisms to serve elite corps of managers.

Many of the subjects discussed these negative aspects of the division's bureaucratic system. Several commented how the division appeared to value policies and rules over results. Others, their frustrations dealing with specialization. As one respondent noted, "they [hourly staff] will only do what is in their job descriptions." He noted how "there was some [employee] bumping with the installation of the new equipment, as some of the new job descriptions specified computer work." Several others discussed how decisions appear frequently to be governed more by vested interests or political expediencies than by concerns of efficiency or effectiveness. As one non ancillary respondent noted, "Everything is so political...how we appear in the community is more important than how we conduct business." Another gave an example of the political nature of the organization:

We had people pushed into our department that we really didn't need. Take for example my secretary... she needed a job, and basically her brother was the deputy minister or something. Anyhow, one phone call later, she is working at the University... they [the university] didn't need a secretary, they had enough,... they created a place for her.

Of all the respondents, the ancillary subjects were the most critical of operating within a bureaucracy. While not everyone used the term bureaucracy or bureaucratic, all

of the ancillary subjects spoke of the difficulty of trying to operate like a business in an institutional environment. They viewed the requirements to follow official channels, the division's many rules and policies, and their hourly staff's determination to only perform work as outlined in their job descriptions as obstacles rather than as tools in which to accomplish their goals and objectives. As one ancillary subject stated in disgust, "This place is so bureaucratic...there is so much red tape involved...it takes forever to accomplish anything!"

Although the division's relationships characterize a mechanistic and bureaucratic system focusing on process, there are also more organic, results oriented relationships occurring within the ancillary units. In addition, these units appear to have the most difficulty dealing with the overall bureaucratic relationship style of the division.

The development of the bureaucratic nature of the division and the respondents' two different working relationship styles for accomplishing their goals can be linked back to the different fiscal environment within which the non ancillary and ancillary departments operate. While Burns and Stalker (1960) noted mechanistic systems are often bureaucratic in nature, other writers such as Hofstede et al.'s (1990) established a link between an organization's operating environment and its tendency to be bureaucratic.

These researchers reported that process oriented or mechanistic systems have a greater tendency to develop in financially stable environments, whereas organic, results oriented organizations are more often located in financially turbulent environments. The

study of the division of the administration and financial services at the University of Windsor provides yet another example to these researchers' basic hypothesis as the data collected during the interview phase of this study lends additional validity to the link between the fiscal environment and an organizations design and operational style. As previously discussed, the division's non ancillary units have traditionally operated in a fairly financially stable environment whereas its ancillary units have operated in a much more turbulent, market driven environment. This link between the environment and operational style is further supported when one examines how the recent changes in the non ancillary department's fiscal environment is currently impacting these departments. As the vice president noted,

It [the environment] is getting more competitive now... I think that there is some willingness to now look at doing things differently. Getting the changes in place is going to be the trick... we need to become more innovative... we need to change how things are done. This is going to be difficult as this has been a very traditional institution.

Although he did not use the terminology, the vice president's comments describe a mechanistic system moving towards an organic system of management. He also notes that this move towards "innovation" is a direct result of the environment becoming "more competitive." According to Burns and Stalker, competition is a major characteristic of an unstable financial environment. Therefore, it can be argued that the vice president's comments reflect the non ancillaries current attempts to adapt to their changing environmental conditions.

In addition to relationships being bureaucratic and hierarchical in nature, there is also evidence that division's management tends to relate to their employees in a paternalistic style. Although the word paternalism means acting toward others as a father would act towards his children, it is used in businesses to convey the concept that managers know best. Rather than consulting their staff, managers tend to make decisions on behalf of their staff. Paternalistic managers also tend to believe that they have the power and responsibility to protect their staff. Block (1993) outlines how organizations that limit power and control to only their most senior executives, also tend to have many of these paternalistic characteristics. He argues that since senior management holds the majority of power and control within the organization, the majority of the employees often feel powerless. In an attempt to alleviate this negative and possibly disruptive feeling, "an organization's primitive statement to its employees is: Don't worry so much about the fact that we own you, because we will take care of you" (Block, 1993:147).

As the archival study noted, the institution has traditionally offered market comparable wages and excellent benefits to its employees. Due to the university's reputation for never laying anyone off, employment at the university, especially in the non ancillary departments of the division, has been viewed as being very secure. While these features do not necessarily characterize a paternalistic organization, they arguably tend to attract employees with high security needs. Indeed, four of the interview subjects noted how they felt that their staff had been initially attracted to the university due to the

university's reputation for providing "life time employment opportunities." As one director noted, "People with stronger bias towards stability are attracted to the university as it provides secure employment."

It is the interview data that provide the evidence for the hypothesis that senior management tends to relate to the division's work force in a paternalistic behaviour style. The interview data revealed that many of the respondents assume that they know what is best for their staff, and that it is their responsibility to act on behalf of their staff. While some subjects made direct statements like, "it is my responsibility to look after my staff," others only inferred that the division was paternalistic. For example, one respondent gave an example of how a non ancillary staff member with a long term reputation for being a poor performer had traditionally been handled:

He [former vice president] said, I am not going to fire a person 20 years later because no one could be bothered dealing with the situation back then...when a person is 57 or 58 they have no chance of getting another job... I am not now going to suddenly start disciplining them.

Many of the subjects discussed how the reductions in government funding appeared to be impacting this paternalistic relationship style. Not only did subjects talk of "the need to withhold information from the staff in order to protect them," but five individuals also noted how many of their subordinates were no longer convinced of their ability to protect them. One director outlined a conversation that he had recently had with one of his subordinates,

I essentially said something like, Don't they understand that I can protect these people if they let me handle it my way? Their comment back was, No, they don't think you can protect them any more, they are looking to their union to protect them.

There was also general consensus by the directors that involving staff in the financial decision making process was generally not in their staff's best interest. Four of the directors believed that withholding financial information from their staff prevented their workforce from becoming emotionally upset. As one subject noted, "We are downsizing... people are going to be hurt... there's no need to involve them in the decision making process... they will just become upset... they'll know soon enough." Block argues that while senior leadership seldom questions their desire for dominance, many understand that this dominance must be implemented humanely, as "the handcuffs of control only become golden when they are fitted with the promise of protection and satisfaction" (Block, 1993:148). An example of this core assumption was demonstrated by the concerns of the division's senior management regarding the recent layoffs. All of the non ancillary directors believed that the layoffs must "be handled as humanely as possible." As the vice president noted, "HR [Human Resources] is to come up with an approach that will have us deal with a very difficult situation--layoffs. People must be dealt with fairly, humanely,...they must be allowed to leave in as much grace and dignity as they can while at the same time protecting the institution."

Although many of the subjects were aware of the decision to handle the layoffs in

the most "humane" ways, there were many who expressed concern with the initial decision to downsize the division. As one respondent observed,

Loyalty is a two way street. They [senior administration] have no legitimate reason to assume the employees will continue to walk their side of the street. I think that in the long term the cost of this approach [layoffs] will be extremely high.

While many of the non ancillary subjects talked about the need to "protect" or "look after" their subordinates, only one member of the ancillary units spoke on this issue. As previously mentioned, in terms of Hofstede's cultural audit model, the ancillary departments tend to be more job-oriented while the non ancillary departments tend to be more employee-oriented. These differences in orientation tendencies appear to impact the degree of paternalism operating within a department. The non ancillary departments, which were employee-oriented, also appear to be more paternalistic. The ancillary units, which were more job-oriented, appear to be less paternalistic towards their staff. As one ancillary subject stated, "staff have to assume some of the responsibility for their futures,...if we [staff and management] don't get the sales, we don't keep our jobs."

Once again, the fiscal environment appears to be a contributing factor to the several differences between the level of paternalism being exhibited in the ancillary units versus the non ancillary units. Peter Block (1993:148) argues that, "the entrepreneurial mind set is incompatible with paternalism,... as caretaking tends to undermine ownership and responsibility." This study has already established that the ancillary units'

entrepreneurial spirit is the result of these units operating in a financially unstable environment. As previously discussed, unlike the ancillary units, the non ancillary units have traditionally been able to afford to be more employee-oriented due to the stability of the fiscal environment. This environmental stability also appears to be a contributing factor in the higher level of paternalism within these non ancillary departments.

Assumptions about Human Activity

Closely connected to assumptions about human nature and their relationships are assumptions about the appropriate way for humans to act in relation to their environment. Schein (1992) utilizes the work of Klockholn and Strodtbeck to uncover an organization's basic assumptions regarding its relationship with its environment. Klockholn and Strodtbeck note in their comparative study that at one extreme one can identify a "doing" orientation, which correlates closely with (1) the assumption that nature can be controlled and manipulated, (2) a pragmatic orientation toward the nature of reality, and (3) a belief in human perfectibility. In other words, it is taken for granted that the proper thing for people to do is take charge and actively control their environment. According to Schein, organizations with a doing orientation tend to focus their efforts on results, efficiency, and on problem solving. At the other extreme from doing is a "being" orientation, which correlates closely with the assumption that nature is powerful and humanity is subservient to it. This orientation implies a kind of fatalism: since one cannot influence nature, one

must become accepting and enjoy what one has. Schein notes that organizations operating according to this orientation would look for a niche in their environment that would allow them to survive and would also think in terms of adapting to external realities rather than trying to create markets or dominate some portion of the environment. A third orientation, which lies between the two extremes of doing and being is "being in becoming," referring to the idea that the individual must achieve harmony with nature by fully developing his or her own capacities and thereby achieve a perfect union with the environment. An organization with this typology emphasizes hierarchy, rules, clearly defined roles, and other means to help people curb and control their natural impulses and desires. Implicit in this view is the assumption that basic impulses are dangerous and must be controlled. According to Schein, the relevance of this dimension can be seen most clearly in organizational attitudes and norms regarding the expression of emotions.

Working within these typologies, the division's overall orientation is that of the "being in becoming." As the results of both the archival and interview portions of the study noted, characteristics of the division include a clear definition of roles, a focus on rules and policies, and an emphasis on hierarchy. Similar to many other North American organizations, emotional responses are viewed as unprofessional. As one subject bluntly noted, "Emotions have no place here... we are expected to leave our emotions at home." While ancillary units also have many of these "being in becoming" characteristics, they

also have many of the characteristics of the "doing" orientation. As one ancillary subject noted, "We solve our own problems, ... its up to us to figure out how to be self-supportive... I think that we ancillaries have a solid record for achieving results." There is also evidence that the non ancillary departments are currently shifting towards a "doing" orientation. As previously mentioned, the vice president is currently attempting to wean these departments away from their dependency on his contingency fund and move them more towards more innovative problem solving models.

The non ancillary department's new focus on customer service provides additional evidence that the non ancillary departments are moving towards a "doing" orientation. While the ancillary departments have always focused on customer service as a means of ensuring that their customers continued to utilize their services, this is a relatively new concept for the non ancillary departments. As one non ancillary subject noted, "The need to meet the needs of the students has become much more intense. The university must increase its current levels of student retention if we are going to survive." Another stated, "We have to improve our services...for instance, we are looking at how we can expand our services." While each of the non ancillary respondents spoke of customer service, not all perceived this new focus as a positive development. As one incumbent noted, "All I ever hear now is customer service.... this is nonsense,... we are not a business, we are a university!"

The division's overall "being in becoming" orientation, the ancillaries' "doing"

orientation, and the current shift of the non ancillary departments towards a "doing" orientation can once again be explained in part by the influences of their particular fiscal environments. As previously discussed, the non ancillary departments have traditionally operated in a fairly stable fiscal environment whereas the ancillary units have operated in a much more unstable fiscal environment. The stable environment of the non ancillaries has allowed these departments to focus their attention more on the process involved than on the financial results achieved. Ancillaries operating in a much more turbulent environment were much more focused on ensuring they achieved their financial goals. There was less attention paid to the process, as their primary focus was on their ability to achieve sufficient funds to cover their operating expenses. In order to survive in this environment, these units had to ensure that their customers would continue to purchase their services. This objective was accomplished by ancillaries focusing on their customers' needs and expectations. As one ancillary subject noted, "We conduct customer surveys as we need to know what our customers want and expect from us...we need our customers....without them we won't have jobs." Due to the new financial insecurity now being experienced by the non ancillary departments, these departments have recently shifted their attention more towards achieving financial results than on the process involved. This new focus on the need to achieve financial results has led in the non ancillary departments to focus their attention on customer service issues.

SUMMATION OF CULTURAL ASSUMPTIONS

As noted in the summary of the archival review the division's culture can be described, according to Sethia and Von Glinow's cultural model, as a combination of an apathetic and caring organizational culture. While the data collected during the interview phase of the study supports this preliminary description of the division's culture, the interviews provided additional elements of the culture which had been missed in the archival portion of the study.

While several of the subjects interviewed believed that their departments were unique: "we have a very different mentality than almost anyone [department] else," the interview portion of the study revealed two fairly distinct subcultures operating within the division. One subculture is within the non ancillary departments (Human Resources, Department of Finance, the two Physical Plant departments, Computing Services, and Campus Police), and the other, within University Services which includes the division's ancillary units (Book Store, Duplicating Services, Food and Hospitality Services, Residence Services, Health Services, and the CAW Student Centre).

The non ancillary subculture appears to be much more mechanistic than that of the ancillary subculture. It tends to have a sense of tradition and history. Based on the cultural model of Hofstede, Neuijen, Ohayv and Sanders (1990), this subculture appears to place more emphasis on the process than on results. Due to the emphasis on process, it also has the tendency to have many normative traits and can be described as being

bureaucratic in nature. Although bureaucratic, it was also found that of the two subcultures, the non ancillary culture was the most employee oriented. This focus on employees was also evident in this subculture's paternalistic assumptions.

Unlike the non ancillary departments, the subculture of the ancillary units has much more of an entrepreneurial spirit and can be described as pragmatic. It tends to be primarily organic in nature. Its primary focus is on the present and the future. There is little focus on the past. It is very results oriented. There is considerable emphasis on the need to get the job done. This focus has resulted in these departments being much less benevolent to their employees than that of the non ancillary culture.

Many of the interview subjects were aware of the two subcultures. As one respondent noted, "We [ancillaries] have a different culture [from that of the non ancillary departments]. Several interviewees noted that the differences between the two cultures was due to the differences in their fiscal environments. As one subject stated, "I honestly feel that there is a difference between the two groups [ancillary and non ancillary]...we [ancillaries] have to be innovative...since whatever funding is required, its our responsibility to provide it...unlike the other areas we must be totally self-supportive."

As previously discussed, the differences in the two subcultures can be partially explained by the differences in their fiscal environments. The ancillary units have traditionally operated in a market driven, turbulent fiscal environment. In order to financially survive, these units had no choice but to focus their attention on meeting the

demands of their clientele. This led to a customer service subculture that was both pragmatic and results oriented. Unlike the ancillary units, the non ancillary departments receive their funding from governmental operating grants, which until very recently have provided these departments with a financially stable environment. This stability allowed these departments to be much more employee oriented, and for its managers to focus on their attention on processes rather than on results. Due to the recent funding reductions, the non ancillary departments are currently operating in a much less stable fiscal environment. As the interviews reported, the non ancillary subculture is in a state of change as it adjusts to operating in this new fiscal environment.

CHAPTER IV

CONCLUSION

The results of this study support various theoretical positions discussed in the literature review section of this paper. Similar to the cultural research findings of Clark (1970), Rossman, Cobett and Firestone (1988) and Wolcott (1973) on large organizations, it was found that the Division of Administration and Finance at the University of Windsor also possesses its own distinct internal culture. Although the study only examined the non academic, administrative division of the university, the results of the study support the argument that post secondary institutions' non academic divisions often tend to have more of a managerial or corporate culture than the collegial culture found in the academic units of the universities (Berquist, 1992; Kuh and Whitt, 1988; Schoenfeld, 1994; and Tierney, 1988). In addition, the study revealed two subcultures within the division: one within the departments of Human Resources, Finance, Computing Services, Physical Plant and Campus Police, and another within units reporting to the Department of University Services. The discovery of two subcultures within the division support other researchers' hypothesis that subcultures often develop in large complex organizations (Gregory, 1983; Schein, 1992; Smircich, 1983a; and Wilkins, 1983). In addition, the results of the study clearly demonstrate the relationship between an organization's culture(s) and its fiscal environment. Similar to

Scott's (1992) analysis of organizations and their environments, it was found that the division has a symbiotic relationship with its environment. In addition, the results of the study provide support for the argument that in order to understand an organization's culture(s) one must also look outside the organization to external factors as well as those internal to the organization (Deal and Kennedy, 1982; Peters and Waterman, 1982; Whorton and Wothley, 1981) and that an organization's fiscal environment is an important variable in the development of both its structure(s) and culture(s) (Lawrence and Lorsch, 1967; Schein, 1992).

The archival study examined the relationship between the institution's fiscal environment and the development of its financial policies. The results of this phase of the study not only support Lawrence and Lorsch's (1967) general hypothesis that there is link between an organization's environment and its structure, but also the work of Pfeffer and Salancik (1978) who argued that organizations often change their activities in response to their changing fiscal environments. More specifically, the investigation provides additional support for the argument that the dependence of schools on their environment for fiscal resources affects the internal structures and processes within educational facilities (Blizek and Simpson, 1978; Freeman, 1979; Hardy, 1989; Hoy and Miskel, 1991).

The relationship between the external environment and an organization's structure(s) and culture(s) became even more apparent during the interview phase of the

study. Even though both the non ancillary and ancillary departments belong to the same organization, operate under the same centralized formalized operating systems and policies, including wage and benefit packages, and manage their hourly staff with the same union contracts, the investigation found that there were two unique subcultures operating within the division. The differences in these two subcultures could, at least in part, be explained by their different fiscal environments.

The non ancillary departments, which had traditionally operated in a stable fiscal environment, tend to be mechanistic, characterized by formal rules and centralized decision making. Unlike their non ancillary peers, the ancillary units, which have historically operated in a much less stable fiscal environment, were found to be much more organic in nature. There was much less emphasis on formalized rules, and financial decision making tended to be decentralized. These findings matched the research results of Burns and Stalker (1961), Hofstede (1983a, 1983b, 1983c, 1983d), Hofstede, Neuijen, Ohayv, and Sanders (1990), Newman (1980) and Tierney (1988).

As first noted by Burns and Stalker, organizations operating in stable environments often tended to be mechanistic in nature while those operating in unstable, turbulent environments were much likely to be organic in nature. This initial observation was reinforced by the work of organizational scientists such as Hofstede's research on organizational culture. When the cultural audit model of Hofstede et al was operationalized as part of the cultural study on the Division of Administration and

Finance, similar results were obtained. In addition, similar to the research of Tierney (1988), the investigation highlighted how changing environmental conditions impact an organization's subcultures. More importantly, the research results of this study builds on the results found by Newman (1980). Similar to the research findings of Newman's study on government funded institutions, this study also found that the level of government funding impacted the division's culture.

While this study's theoretical focus holds that the fiscal environment indisputably plays an important role in the development of an organization's culture, it cannot be conceptualized as the only variable impacting an organization's culture(s). Although the results of the study clearly indicate the impact of economic resources on the division's subcultures, this is but one external environmental factor. Other recognized environmental components influencing an organization's culture are the societal cultural factors, and the organization's legal-political environment (Khandwalla, 1977). For example, as others have noted, the managers' beliefs and values could have been shaped by their education and/or their previous work experience in other organizations (Schein, 1992; Scott, 1992). Therefore, the study's sole focus on the organization's fiscal environment limits the research findings of this study.

In addition to environmental factors, other organizational variables have been recognized as impacting an organization's culture. One of the most prevalent of these is the role of the organization's leaders. Schein (1992), for example, argues that leadership

style is often one of the most important variables influencing an organization's culture. He outlines how the assumptions of leaders are gradually taught to new members and how organizational culture is thereby created. In addition, he describes how various organizational mechanisms allow leaders, unlike other agents, to embed their personal assumptions into the organization's routines and processes.

Indeed, although not examined, the role of leadership may be a significant variable in helping to explain the causation of the subcultures within the Division of Administration and Finance at the University of Windsor. As outlined in the archival study, a new vice president was hired in early 1995. Furthermore, many of the interview subjects noted how the new vice president has a very different leadership style from that of the former vice president. Although there was consensus among the respondents that the apparent changes in the division's norms, values, and beliefs were a direct result of the changes in the level of the government's funding, there was also recognition that the new vice presidents's leadership style was influencing these changes. As one subject noted, "their [new vice president versus former vice president] styles are immensely different...we are adjusting our practices to suit his style."

Another limitation of the study arises from its methodology. As discussed in the literature review, the functionalist diagnostic models such as Schein's (1983), Sethia and Von Glinow's (1985), and Hofstede et al.'s (1990) are typically viewed as the most accessible tools in which to study organizational cultures as they are perceived as being

well defined. Due to functionalism being well defined, it is argued that these analytical models can be directly applied to the empirical field (Schultz, 1994). The results of the case study on the University of Windsor's Division of Administration and Finance tend to support this argument as the these models provided the researcher with fruitful cultural research tools. Although the artifact and value level of Schein's model were only marginally operationalized, the model's basic assumption level proved to be extremely beneficial in uncovering the division's cultures. But, as Schein (1992) himself has noted, and similar to other researchers utilizing this model (Perdersen and Sorensen, 1989), it was difficult to approach the level of basic assumptions using this model. The utilization of the reward system model of Sethia and Von Glinow (1985) and Hofestede et al.'s (1990) cultural audit model proved beneficial in overcoming the limitations of Schein's model.

Although useful, a noted limitation of these functionalist models is their tendency to only provide a quick overview of an organization's culture (Schultz, 1994). It has been argued that to uncover an organization's cultural nuances, interpretative approaches provide more in depth research tools than that of the functionalist perspective. Therefore, important nuances of the two cultures may have been missed since only a functionalist paradigm was utilized in this study.

In addition to the chosen methodological perspective, the decision to restrict the interviews to select senior managerial staff also created limitations on the study's ability

to generalize its findings to the overall populations of the division. Like most organizational research, the study of organizational culture has been primarily conducted from a managerial standpoint. This study was no exception. But, as Tim Davis (1985:164) notes, "The study of organizational culture is incomplete without taking into account the prevailing culture that influences organization members in lower-level jobs. People in non managerial positions often view both their jobs and the experience of working quite differently from those in managerial positions." Since only managerial staff with direct departmental financial responsibilities, and no other management staff or hourly employees, were interviewed, the results of the study may only reflect the beliefs, values, and norms of the division's senior management rather than those of the division's overall workforce. However, as the interview data makes clear, the subject's responses were much more a reflection of the changing environment than of their position within the hierarchy of the organization. Therefore, it can be hypothesized that the interview data outlined values, beliefs, and norms that are congruent to the division's overall work force.

As this study has clearly shown, the fiscal environment influences an organization's culture. Although this study only examined the administrative division of one Ontario university, its results may be representative of the hypothesis that university culture is moving from one of scholarship to one of business. Members within the academic community have hypothesised that due to government funding cutbacks,

private market principles are now penetrating everyday working practices within publicly funded universities. This hypothesis is combined with a growing concern that the trend to "introduce market discipline into the public sector is changing the relationship between intellectuals and the state" (Dominelli and Hoogvelt, 1996:89). Intellectuals argue that universities are one of the few places left in society that provides "a home for intellectuals critical of society looking for alternative visions, as well as for those supportive of the status quo" (Dominelli and Hoogvelt, 1996:72). The concern is that with the introduction of market principles, the government is "subverting the critical scholarship and the value-free and non-commercial ethos of the academic community," and becoming a controller of intellectual activity rather than a promoter of it (Dominelli and Hoogvelt, 1996:84). They argue that as the state becomes a vehicle for the adjustment of the domestic economy, it takes on a whole range of tasks and functions on behalf of international capital including transforming "higher education from a critical activity to short-term training for the labour market and from basic research to research that is relevant to the needs of industry" (Dominelli and Hoogvelt, 1996:75). Although the data collected during this study appears to provide evidence to support the argument that private market place practices are penetrating the administrative division of the University of Windsor, further research needs to be conducted in order to determine if this study is an isolated case or an example of a larger trend.

Although the data collected for this case study creates additional questions that

only further research can answer, the data clearly shows the importance of the relationship between an organization's fiscal environment and its culture.

APPENDICES

APPENDIX 1	Sethia and Von Glinow Culture-Reward System Model
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APPENDIX 1

Sethia and Von Glinow Culture-Reward System Model

Reward-System Dimension	Human Resource Cultures		
	Apathetic	Caring	Exacting
1. Kinds of Rewards			
Financial Rewards	Poor	Average	Variable
Job Content Rewards	Poor	Average	Good
Career Rewards	Poor	Good	Average
Status Differentiation	High	High	Moderate
			Superior
			Superior
			Superior
			Low
2. Criteria For Rewards (Examples)			
Performance: Results	Individual success Illusory	(Reasonable effort) Day-to-day	Individual success Short-term
			Group/company success Long-term
Performance: Actions and Behaviors	Manipulation Politicking	Compliance Cooperation	Efficiency Competition
Nonperformance Considerations	Contract Patronage	Membership Position	Nature of Work Replaceability
			Innovation Independence
			Equity Potential

Source of Table: Sethia and Von Glinow 1990:410

APPENDIX 2

INTERVIEW SCHEDULE

Office of the Vice-President, Administration & Finance:

Vice President

University Services:

Director

Department Head-----Bookstore

Manager-----Document Services

Department Head-----Residence Services

Department Head-----CAW Student Centre

Department Head-----Medical and Health Services

Campus Police:

Director

Computing Services:

Director

Department of Finance:

Director

Assistant Director

Manager-----Purchasing/Post Office

Human Resources:

Director

Physical Plant:

Director

Director of Operations

Acting Superintendent-Housekeeping & Grounds

APPENDIX 3

CONSENT FORM

You are being requested to participate in a master's research project under the direction of the University of Windsor's Anthropology and Sociology Department. The study examines the influence of fiscal resources on the internal culture(s) of the Division of Administrative and Financial Services at the University of Windsor.

Your participation will involve being interviewed for approximately two hours within your workplace office. The researcher will request your permission to tape record the interview. The purpose of tape recording the interview is to assist the researcher in ensuring that the interview is transcribed accurately. The researcher will have full control of the interview tapes, and the tapes will be destroyed after being transcribed.

Your participation in this project is completely voluntary. However, your participation will be greatly appreciated. If you do choose to participate, you have the right to refuse to answer any of the particular interview questions. You also have the right to withdraw from this project at any time.

Your answers will be confidential. Neither your name nor identity will appear on the interview transcripts. All information about participants is strictly confidential and your anonymity will be maintained.

If you would like to receive the abstract section of the thesis, a copy will be sent to you upon request. A copy of the completed thesis will be given to the Vice President of Administrative and Financial Services. You will receive notification when the full report is available in the Leddy Library for review.

This study has been approved by the Ethics Committee of the University of Windsor's Anthropology and Sociology Department. If you have any questions, concerns or complaints regarding the ethical component of this project, please direct them to the chairperson of the Anthropology and Sociology Ethics Committee, Prof. Allan Hall (253-4232, ext.2202).

If you have questions regarding the research project itself, please feel free to contact the researcher: Lynda Smith (973-7016) or the research supervisor, Prof. Adolf Ehrentraut (253-4232, ext. 2196).

Your cooperation and assistance in this research project will be greatly appreciated.

I, _____ consent to

(Please print full name)

the following study with the understanding that participation is voluntary, that withdrawal from the study can be done at any time and that confidentiality will be maintained.

(Signature)

(Date)

I would like to receive a copy of the thesis's abstract ____.

APPENDIX 4

INTERVIEW QUESTIONS

1. You are currently the _____ (position). How long have you been in this position? What areas are under your responsibility?

2. a) Prior to the current fiscal restraints, how did your department determine its annual operating budget?

* What has been your department's primary source of fiscal resources over the years? Is this changing? If so, in what ways?

* In the past, how did your department achieve funds for special projects, one time expenses etc? Has this process changed? If so, in what ways.

* In the past, how much input did the managerial staff within your department have in the development of your department's annual operating budget? Has the level of input changed? If so, how has it changed?

* In the past, were unionized employees ever involved in the budgetary process? If so, in what ways? Has this practice changed? If so, how has it changed?

b) Has the budgeting process changed in any additional ways now that the division is faced with a 15% reduction in operating funds? If so, how is it different?

3. Once your annual operating budget was completed, what role did it play in the day-to-day operation of your department? Has this role changed? If so, in what ways?

* How much emphasis was placed on the day-to-day bookkeeping /accounting of your operating funds? Has this now changed? If so, in what ways?

* Once your budget was determined, were funds reallocated from one budget line to another during the course of the fiscal year? If so, why was this done? Is this practice still done? If not, why not?

* How did your department handle unexpected financial emergencies that occurred during the actual operating year? Is this practice changing? If so, how has it changed?

* How have financial difficulties within your department been resolved in the past? Is this practice changing? If so, in what ways?

* How did your superiors respond when you proposed innovative solutions to financial problems? In your opinion were they willing to take a calculated financial risk in order to resolve the problem? Has this practice changed? If so, in what ways?

* If budgeted funds remained unspent at year end, was your department allowed to keep this surplus? How did your department respond to this policy? Has this policy changed? If so, in what ways and what impact has it had?

* In the past, were you evaluated by your superiors on how successfully you handled your operating budget? How was your performance acknowledged? Has this practice changed?

* Has your department traditionally had a long term financial plan? If not, why? If yes, why? How far in advance is your department now currently financially planning for? Why?

* Have you or your management staff ever discussed financial issues/problems with the unionized staff within your department? If so, to what depth have you discussed your department's finances? Why have you done this? Is this practice changing? If so, why?

4. How does your department measure its level of success?

* Who do you provide services to?

* How does your department ensure that it is providing the services required of it?

5. a) Does your department have any similarities to other departments within the division of administrative and financial services? If so, what are they?

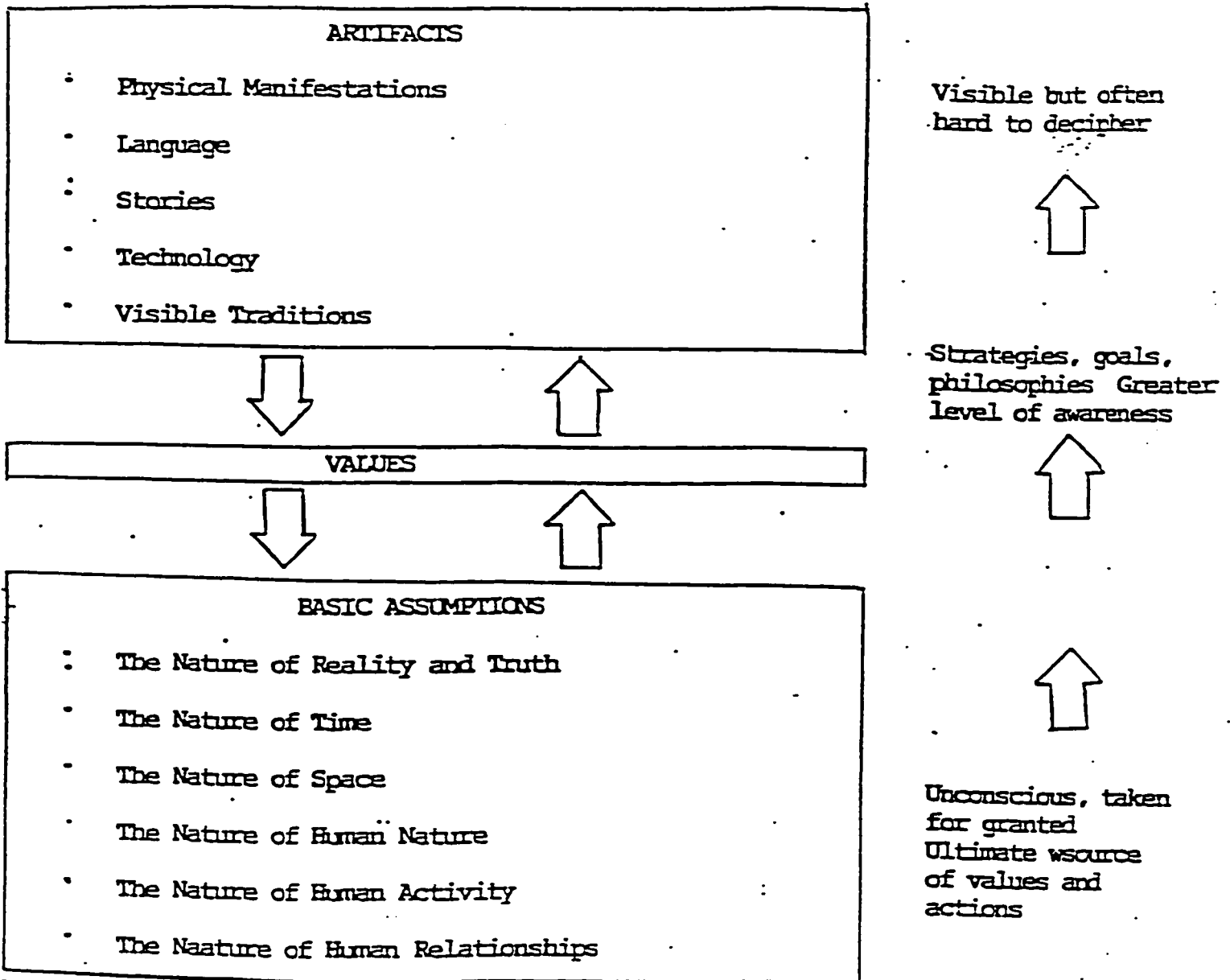
b) Is your department different from those of other departments within this division? If so, how is it different?

6. What impact has the university's "Report of the Strategic Planning Task Force, Administration and Services" had on your department? How did your department respond to its recommendations?

APPENDIX 5

SCHEIN'S (1992) CULTURAL AUDIT MODEL

Schein's Three Levels of Culture



APPENDIX 6

TABLE OF THE ANNUAL PERCENTAGE CHANGE IN
REVENUE AND EXPENDITURES
(UNIVERSITY OF WINDSOR)

REVENUE	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Student Fees	- 4.3	+3.4	+ 8.8	+ 8.6	+10.8	+12.5	+13.3	+10.6	+4.3	+9.4
Government Grants	+1.3	+6.0	+ 4.9	+ 7.2	+ 9.1	+ 7.5	+ 6.1	+ 1.2	- 6.4	- 4.1
Ancillary Enterprise	+9.8	+6.9	+15.0	+13.8	+ 3	+16.6	+ 8.8	+ 4.5	+5.6	+5.4
TOTAL REVENUE	+ .6	+5.0	+ 6.2	+ 9.4	+ 9.4	+ 9.9	+ 7.7	+ 4.1	- 2.5	+ 1

EXPENDITURES	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Computing Services	+21.6	- 3.4	- 3.5	- 3.5	+ 9.2	+10.2	+ 7	+ 7.8	+19.5	-17.1
Admin. Services	+ 4.9	+ 3.2	+10	+ 8.2	+ 9.1	+14.9	+ 4.5	- 5	+ 2.2	- .1
Plant Maintenance	+ .1	+ 2.2	+ 1	+ 7.3	+ 5.9	+ 9	+ 9.7	+12.8	- 8.1	+1.3
Ancillary Enterprises	+ 3	+10	+13.7	+12.1	+7.7	+14	+ 6.2	+9.8	- .5	+1.7
TOTAL EXPENDITURES	+ 1.3	+ 6.2	+ 7	+ 5.5	+ 8.5	+10.1	+ 6.3	+ 5.8	+ 1.4	- 3.1

SOURCE: ANNUAL AUDITED FINANCIAL STATEMENTS

BY: DELOITTE & TOUCHE CHARTERED ACCOUNTANTS 1985, 1986, 1987, 1988, 1989, 1990
PEAT MARWICK THORNE CHARTERED ACCOUNTANTS 1991, 1992, 1993, 1994, 1995

APPENDIX 7 SCHEIN'S ADAPTATION OF

ENGLAND'S (1975) MORALISM-PRAGMATISM SCALE

1. Pure dogma, based on tradition and/or religion:

It has always been done this way; it is God's will; it is written in the Scriptures.

2. Revealed dogma that is, wisdom based on trust in the authority of wise men, formal leaders, prophets, or kings:

Our president wants to do it this way; our consultants have recommended that we do it this way; she has had the most experience, so we should do what she says.

3. Truth derived by a "rational-legal" process:

As when we establish the guilt or innocence of an individual by means of a legal process that acknowledges from the outset that there is no absolute truth: We have to take this decision to the marketing committee and do what they decide; the boss will have to decide this one because it is his area of responsibility; we will have to vote on it and go by majority rule; we agreed that this decision belongs to the production department head.

4. Truth as that which survives conflict and debate:

We thrashed it out in three committees, tested it on the sales force, and the idea is still sound, so we will do it; does anyone see any problems with doing it this way...if not, that's what we'll do.

5. Truth as that which works, the purely pragmatic criterion:

Let's try it out this way and evaluate how we are doing.

6. Truth as established by the scientific method, which becomes, once again, a kind of dogma:

Our research shows that this is the right way to do it; we've done three surveys and they all show the same thing, so let's act on them.

(Schein, 1992: 102)

BIBLIOGRAPHY

Aguilar, John

1976 "Environments of Organizations." Annual Review of Sociology 2: 79-105.

1981 "Insider Research: An Ethnography of a Debate." In Donald A. Messerschmidt (ed.) Anthropologists at Home in North America: Methods and Issues in the Study of One's Own Society. New York: Cambridge University Press.

Aiken, Michael and Jerald Hage

1968 "Organizational Interdependence and Intraorganizational Structure." American Sociological Review 33: 912-29.

Aldrich, Howard

1976 "Resource Dependence and Interorganizational Relations: Local Employment Service Offices and Social Services Sector Organizations." Administration and Society 7: 419-54.

1979 Organizations and Environment. Englewood Cliffs, NJ: Prentice Hall.

Alexander, Jeffrey, and Thomas D'Aunno

1990 "Transformation of Institutional Environments: Perspectives on the Corporatization of U.S. Health Care." In Stephen Mick (ed.) Innovations in Health Care Delivery: Insights for Organization Theory. San Francisco: Jossey-Bass.

Aldrich, Howard and Sergio Mindlin

1978 "Uncertainty and Dependence: Two Perspectives on Environment." In Lucien Kapik (ed.) Organization and Environment: Theory, Issues, and Reality. Beverly Hills, CA: Sage.

Aldrich, Howard and Jeffrey Pfeffer

1976 "Environments of Organizations." Annual Review of Sociology 2: 79-105.

Alvesson, Mats

1994 Cultural Perspectives on Organizations. New York: Cambridge University Press.

Anderson, Margaret

1993 Thinking About Women. New York: Macmillan.

- Argyris, Chris
1958 "Some Problems in Conceptualizing Organizational Climate: A Case Study of a Bank." Administrative Science Quarterly 2: 501-520.
- Baker, Edwin
1980 "Managing Organizational Culture." Management Review 69, (July):8-13.
- Barnard, Chester
1938 The Functions of the Executive. Cambridge, MA: Harvard University Press.
- Becher, Tom
1981 "Towards a Definition of Disciplinary Cultures." Studies in Higher Education 6: 109-22.
- Becker, Howard
1963 "Student Culture." In Terry Lunsford (ed.) The Study of Campus Cultures. Boulder, Col.: Western Interstate Commission for Higher Learning.
- Berg, Per-Olaf and C.Kreiner
1990 "Corporate Architecture: Turning Physical Settings in Symbolic Resources." In Pasquale Gagliardi (ed.) Setting and Artifacts. New York: de Gruyter.
- Berger, Peter and Thomas Luckmann
1966 The Social Construction of Reality. New York: Double Day.
- Bergquist, William
1992 The Four Cultures of Academy. San Francisco: Jossey-Bass.
- Beyer, Janice
1981 "Ideologies, Values, and Decision-Making in Organizations." In Paul Nystrom, William Starbuck (eds.) Handbook of Organizational Design, volume 2. London: Oxford University Press.
- Blizek, William and Robert Simpson
1978 "The Urban University and Urban Culture." Urban Review (Winter) 278-286.
- Block, Peter
1993 Stewardship-Choosing Service Over Self Interest. San Francisco: Berrett-Koehler.

Bourdieu, Peter

- 1977 "Student Values: A Summary of Research and Future Problems." In M. Carpenter (ed.) The Larger Learning Dubuque, Iowa: Brown.

Bowditch, Hames, and Anthony Buono

- 1985 A Primer on Organizational Behaviour. New York: Wiley.

Boyd, William and Robert Crowson

- 1981 "The Changing Conception and Practice of Public School Administration." Review of Research in Education 9: 311-373.

Bushnell, John

- 1960 "Student Values: A Summary of Research and Future Problems." In M. Carpenter (ed.) The Larger Learning. Dubuque, Iowa: Brown.

Burns, Tom, and George Stalker

- 1961 The Management of Innovation. London: Tavistock Publications.

Clark, Burton

- 1970 The Distinctive College: Antioch, Reed and Swarthmore. Chicago: Aldine.

- 1971 "Belief and Loyalty in College Organizations." Journal of Higher Education 42: 499-520.

- 1980 "The Organizational Saga in Higher Education." In Harold Leavitt (ed.) Readings in Managerial Psychology. Chicago Ill.: University of Chicago Press.

Clark, Bernard

- 1984 Perspectives in Higher Education. Berkeley, CA.: University of California Press.

Creswell, John

- 1994 Research Design: Qualitative and Quantitative Approaches. Thousand Oaks, CA.: Sage.

Daft, Richard

- 1983 "Symbols in Organizations: A Dual-Content Framework for Analysis." In Louis Pondy, Peter Frost, Gareth Morgan, and Thomas Dandridge (eds.) Organizational Symbolism. Greenwich, Conn.: JAI Press.

- 1989 Organization Theory and Design. 3rd ed. St. Paul: West.
- Dandridge, Thomas
 1983 "Symbols Function and Use." In Louis Pondy, Peter Frost, Gareth Morgan, and Thomas Dandridge (eds.) Organizational Symbolism. London: JAI Press.
- Davis, Tim
 1985 "Managing Culture at the Bottom." In Ralph Kimann, Mary Saxton, Roy Serpa (eds.) Gaining Control of the Corporate Culture. San Francisco: Jossey-Bass.
- Davie, Jerry and Allan Hare
 1956 "Button-Down Collar Culture." Human Organization 14: 13-20.
- Deal, Terrence and Allan Kennedy
 1982 Corporate Cultures: The Rites and Rituals of Corporate Life. Reading, Mass.: Addison-Wesley.
- Deloitte and Touche
 1985-90 University of Windsor Financial Statements. Windsor, Ont.
- Dill, Donald
 1982 "The Management of Academic Culture: Notes on the Management of Meaning and Social Integration." Higher Education 11: 303-320.
- Dominelli, Lena, and Ankie Hoogvelt
 1996 "Globalization, Contract Government and the Taylorization of Intellectual Labour in Academia." Studies in Political Economy 49: 71-100.
- Duncan, Robert
 1972 "Characteristics of Organizational Environments and Perceived Environmental Uncertainty." Administrative Science Quarterly 17: 313-327.
- 1979 "What Is the Right Organizational Structure? Decision Free Analysis Provides the Answer." Organizational Dynamics 7: 59-80.
- Emery, Fred and Eric Trist
 1965 "The Causal Texture of Organizational Environments." Human Relations 18: 21-32.

England, George W.

1975 The Manager and His Values. New York: Ballinger.

Fleishman, E.A.

1953 "Leadership Climate, Human Relations Training, and Supervisory Behaviour." Personnel Psychology 6: 205-222.

Freeman, John

1979 "Going to the Well: School District Administrative Intensity and Environmental Constraint." Administrative Science Quarterly 24: 119-133.

Freedman, M.

1979 Academic Culture and Faculty Development. Berkley, Calif.: University of California Press.

Frost, Peter, Larry Moore, Meryl Louis, Craig Lundberg, and Joanne Martin

1991 Reframing Organizational Culture. London: Sage Publications.

Gaff, Jerry and Robert Wilson

1971 "Faculty Cultures and Interdisciplinary Studies." Journal of Higher Education 42: 186-201.

Gagliardi, Pasquale

1990 Symbols and Artifacts: View of the Corporate Landscape. New York: de Gruyter.

Gamst, Frederick, and Edward Norbeck

1976 Ideas of Culture: Sources and Uses. New York: Holt, Rinehart and Winston.

Geertz, Clifford

1973 The Interpretation of Cultures. New York: Basic Books.

Goffman, Erving

1959 The Presentation of Self in Everyday Life. New York: Doubleday.

1967 Interaction Ritual. Hawthorne, N.Y.: Aldine.

Gordon, George

- 1985 "The Relationship of Corporate Culture to Industry Sector and Corporate Performance." In Ralph Kilman, Mary Saxton, Roy Serpa, and Associates (Eds.) Gaining Control of the Corporate Culture. San Francisco: Jossey-Bass.

Govindarian, Vijay

- 1988 "A Contingency Approach to Strategy Implementation at the Business-Unit Level: Integrating Administrative Mechanisms with Strategy." Academy of Management Journal 31: 828-853.

Gregory, Kathleen

- 1983 "Native-View Paradigms: Multiple Cultures and Culture Conflicts in Organizations." Administrative Science Quarterly 28: 359-376.

Guba, Egan

- 1981 "Criteria for Assessing the Trustworthiness of Naturalistic Inquiries." Educational Communications and Technology Journal 29:

Guba, Egan and Yvonna Lincoln

- 1981 Effective Evaluation. San Francisco: Jossey-Bass.

Hannon, Michael and John Freeman

- 1989 Organizational Ecology. Cambridge: Harvard University Press.

Hardy, Cynthia

- 1989 "Managing Budgetary Restrictions in Universities: Two Canadian Experiences." Sociologie-du-Travail 31(4): 427-453.

Harris, Marvin

- 1988 Culture, People, Nature. An Introduction to General Anthropology. New York: Harper and Row Publishers.

Hawley, Amos

- 1950 Human Ecology. New York: Ronald Press.

Hofstede, Geert

- 1980 Culture's Consequences. Beverly Hills, CA.: Sage.

- 1983a "Dimensions of National Cultures in Fifty Countries and Three Regions." In J.B.Deregowski, S.Dziruwawiec, and R.C.Annis (eds.) Expiscations in Cross-Cultural Psychology. Lisse, Neth.: Swets and Zeitlinger.
- 1983b "National Cultures in Four Dimensions." International Studies of Management and O rganization 13:46-74.
- 1983c "The Cultural Relativity of Organizational Practices and Theories." Journal of International Business Studies. 14: 75-89.
- 1983d "National Cultures Revisited." Behaviour Science Research 18: 285-305.
- Hofstede, Geert, Bram Neuijen, Denise Daval Ohayv, and Geert Sanders
 1990 "Measuring Organizational Cultures: A Qualitative and Quantitative Study Across Twenty Cases." Administrative Science Quarterly 35: 286-316.
- Hoy, Wayne, and Cecil Miskel
 1991 Educational Administration: Theory, Research, Practice. New York: McGraw-Hill.
- Jacques, Elliot
 1952 The Changing Culture of a Factory. New York: Dryden Press.
- Jelinek Mariann, Linda Smircich, and Paul Hirsch
 1983 "Introduction: A Code of Many Colours." Administrative Science Quarterly 23: 331-338.
- Jones, Michael, Michael Moore, and Richard Snyder (eds.).
 1988 Inside Organizations: Understanding the Human Dimension. Newbury Park, CA.: Sage.
- Katz, Daniel, and Robert Kahn
 1978 The Social Psychology of Organizations, 2nd ed. New York: Wiley.
- Khandwalla, Pradip
 1977 The Design of Organizations. New York: Harcourt Brace Jovanovich, Inc.
- Kilmann, Ralph
 1982 "Getting Control of the Corporate Culture." Managing 3: 11-17.

Kirk John and Marc Miller

1986 Reliability and Validity in Qualitative Research. Newbury Park, CA.:Sage.

Kluckhohn, Florence Rockwood and Fred Strodbeck

1961 Variations in Value Orientations. New York: Harper & Row.

Koberg, Christine, and Geraldo Ungson

1987 "The Effects of Environmental Uncertainty and Dependence on Organizational Structure and Performance: A Comparative Study." Journal of Management 13: 725-737.

Kuh, George and Elizabeth Whitt

1988 The Invisible Tapestry: Culture in American Colleges and Universities. Washington DC: The George Washington University Press.

Lawler, Edward

1984 The Design of Effective Reward Systems. Los Angeles: University of Southern California.

Lawrence, Paul, and Jay Lorsch

1967 Organization and Environment. Cambridge, Mass.: Harvard University Press.

Lewin, K., Lippitt, R., White, R.,K.

1939 "Patterns of Agressive Behaviour in Experimentally Created Social Climates." Journal of Social Psychology, 10: 271-299.

Litwin, G.H., and R.A. Stringer

1968 Motivation and Organizational Climate. Cambridge, MA: Harvard Business School, Division of Research.

Louis, Meryl Reis

1980a "Organizations as Culture-Bearing Milieux." In Louis Pondy, Peter Frost, Gareth Morgan, and Thomas Dandridge (eds.) Organizational Symbolism. Greenwich, CT: JAI.

1980b "Surprise and Sense-Making: What Newcomers Experience in Entering Unfamiliar Organizational Settings." Administrative Science Quarterly 25: 226-51.

- 1985a "Perspectives on Organizational Cultures." In Peter Frost, Larry Moore, Mery Louis, Craig Lundberg, and Joanne Martin (eds.) Organizational Cultures. Beverly Hills, CA.:Sage.
- 1985b "Sourcing Workplace Cultures: Why, When and How." In Ralph Kilmann, Mary Saxton, Roy Serpa and Associates (eds.) Gaining Control of the Corporate Culture. San Francisco, CA.: Jossey-Bass
- Marshall, Catherine and Gretchen Rossman
1989 Designing qualitative Research. Newbury Park, CA:Sage.
- Martin, Joanne
1990 "Deconstructiong Organizational Taboos: The Suppression of Gender Conflict in Organizations." Organizational Science 1:1.
- Martin, Joanne, and Caren Siehl
1983 "Organizational Culture and Counterculture: An Uneasy Symbosis." Organizational Dynamics, 12(2): 52-65.
- Miles, M.B., and A.M.Huberman
1984 Qualitative Data Analysis: A Sourcebook of New Methods. Beverly Hills, CA.: Sage
- Miller, Danny
1992 "Environmental Fit Versus Internal Fit." Organization- Science 3: 159-178.
- Mintzberg, Henry
1979 The Structuring of Organizations. Englewood Cliffs, NJ: Prentice-Hall.
- Mocionis, John, Juanne Nancrow Clarke, and Linda Gerber
1993 Sociology: Canadian Edition. Scarorough, Ont.:Prentice Hall.
- Neuman, Lawrence
1994 Social Research Methods: Qualitative and Quantitative Approaches. Needham Heights, Mass.: Simon and Schuster Inc.
- Newman, Katharine
1980 "Incipient Bureaucracy: Anthropological Perspectives on Bureaucracy." In Gerald Britan and Ronald Cohens (eds.) Hierarchy and Society: Anthropological Perspectives on Bureaucracy. Philadelphia: Institute for Study of Social Issues.

- Ontario
1994 Ontario Council of University Affairs. Toronto: Ont.
- Ouchi, Willaim
1981 Theory "Z". Reading Mass.: Addison-Wesley.
- Pace, Christopher
1962 "Methods of Descibing College Cultures." Teachers College Record 63: 267-277.
- Parsons, Talcott
1951 The Social System. Glencoe: The Free Press.
- Patton, Michael Quinn
1980 Qualitative Evaluaton Methods. Beverly Hills, CA.:Sage.
- Peat, Marwick, and Thorne
1991-95 University of Windsor Financial Statements. Windsor, Ont.
Pedersen, Jesper, and Jesper Sorensen
1989 Organizational Cultures in Theory and Practice. Brookfield, USA: Avebury.
- Peters, Thomas
1978 "Symbols, Patterns and Settings: An Optimistic Case for Getting Things Done." _
Organizational Dynamics 7: 3-23.
- Peters, Thomas and Robert Waterman
1982 In Search of Excellence: Lessons from America's Best Run Companies. New York: Harper and Row.
- Pettigrew, Andrew
1979 "On Studying Organizational Cultures." Administrative Science Quarterly 24: 570-81.
- Pfeffer, Jeffrey
1982 Organizations and Organization Theory. Boston: Pitman.
- 1987 "A Resource Dependency Perspective on Intercompany Relations," In Mark Mizruchi and Michael Schwartz (eds.) Intercompany Relations: The Structural

Analysis of Business. New York: Cambridge University Press.

Pfeffer, Jeffrey, and Gerald Salancik

1978 The External Control of Organizations: A Resource Dependency Perspective. New York: Harper and Row.

Pondy, Louis, Peter Frost, Gareth Morgan, and Thomas Dandridge

1983 Organizational Symbolism. Greenwich, Conn.: JIA Press.

Ritz, George

1992 Classical Sociological Theory. New York: McGraw-Hill.

Rossman, Gretchen, H.D. Corbett, and Willaim Firestone

1988 Change and Effectiveness in Schools: A Cultural Perspective. Albany, NY: State University of New York Press.

Sathe, Vijay

1983 "Implications of Corporate Culture: A Manager's Guide to Action." Organizational Dynamics 12: 5-23.

1985 "How to Decipher and Change Corporate Culture" In Ralph Kilmann, Mary Saxton, Roy Serpa and Associates (eds.) Gaining Control of the Corporate Culture. San Francisco CA.: Jossey-Bass.

Schein, Edgar

1983 "Organizational Culture: A Dynamic Model."

1992 Organizational Culture and Leadership. San Francisco, CA.: Jossey-Bass.

Schermerhorn, John, Julian Cattaneo, Andrew Templer, and Richard Osborn

1992 Managing Organizational Behaviour. Toronto: John Wiley & Sons.

Schoenfeld, Clay

1994 "Campus Cultures in Conflict." CUPA Journal Winter: 29-33.

Schultz, Majken

1994 On Studying Organizational Cultures. Berlin: Walter de Gruyter.

Scott, Richard

1992 Organizations: Rational, Natural, and Open Systems.

Englewood Cliffs, New Jersey: Prentice Hall.

Seiler, Jeffrey

1967 Systems Analysis in Organizational Behaviour. Homewood, Ill.:Irwin.

Sethia, Nirmal and Mary Ann Von Glinow

1985 "Arriving at Four Cultures by Managing the Reward System." In Ralph Kilmann, Mary Saxton, Roy Serpa and Associates (eds.) Gaining Control of the Corporate Culture. San Francisco: Jossey-Bass.

Silverman, Donald

1971 The Theory of Organizations. New York: Basic Books.

Skritic, Thomas

1980 "Doing Naturalistic Research into Educational Organizations."

Smircich, Linda

1983a "Concepts of Culture and Organizational Analysis." Administrative Science Quarterly 28: 339-358.

1983b "Studying Organizations as Cultures." In G.Morgan (ed.), Beyond Method: Social Research Strategies. Beverly Hills, CA.: Sage.

Swartz, Howard and Stanley Davis

1981 "Matching Corporate Culture and Business Strategy." Organizational Dynamics Summer: 30-48.

Swartz, Mark, and Donald Jordon

1980 Culture: An Anthropological Perspective. New York: Wiley.

Tepperman, Lorne, and Michael Rosenberg

1991 Macro/Micro: A Brief Introduction to Sociology. Scarborough, Ont.: Prentice Hall.

Tierney, William,

1988 "Organizational Culture in Higher Education." Journal of Higher Education 59: 3-21.

Thompson, James

1967 Organizations in Action. New York: McGraw-Hill.

Trice, Harrison, and Janice Beyer

1984 "Studying Organizational Cultures Through Rites and Ceremonials." Academy of Management Review 9: 653-669.

1985 "Using Six Organizational Rites to Change Culture." In Ralph Kilmann, Mary Saxton, Roy Serpa and Associates in Gaining Control of the Corporate Culture. San Francisco, CA.: Jossey-Bass.

Tunstall, W. Brooke

1983 "Cultural Transition at AT&T." Sloan Management Review 25: 1-12.

University of Windsor

1975 By-Law Number 58: University of Windsor. Windsor, Ont.

1985-95 Minutes of the Board of Governor's Resource Allocation Committee. Windsor, Ont.

Van Maanen, John and Edgar Schein

1979 "Toward a Theory of Organizational Socialization." Research in Organizational Behaviour 1: 209-264.

Weick, Karl

1969 The Social Psychology of Organizing. Reading, Massachusetts: Addison-Wesley.

Wilkins, Alan

1983 "Organizational Stories as Symbols which Control the Organization." In Louis Pondy, Peter Frost, Gareth Morgan and Thomas Dandridge (eds.) Organizational Symbolism. Greenwich, CT: JAI.

Whorton, Joseph and J.A. Wothley

1981 "A Perspective on the Challenge of Public Management: Environmental Paradox and Organizational Culture." Academy of Management Review 6: 357-363.

Wolcott, Harry

1973 The Man in the Principal's Office: An Ethnography. New York: Holt, Rinehart, and Winston.

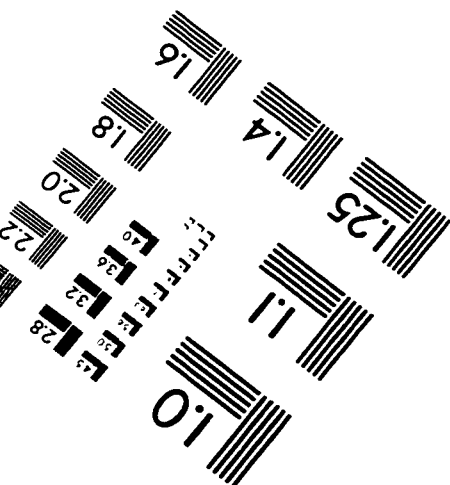
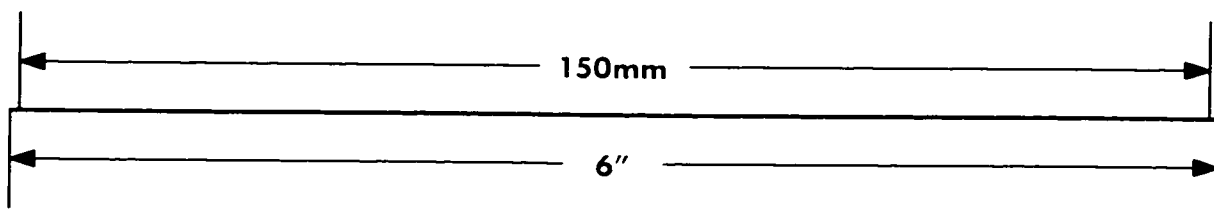
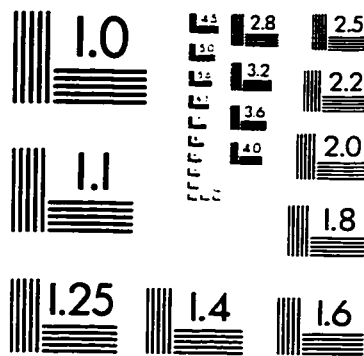
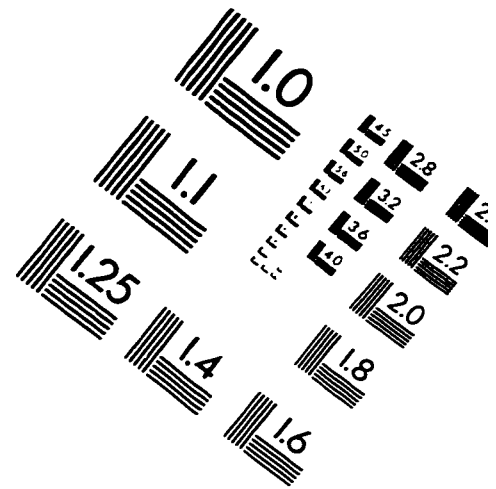
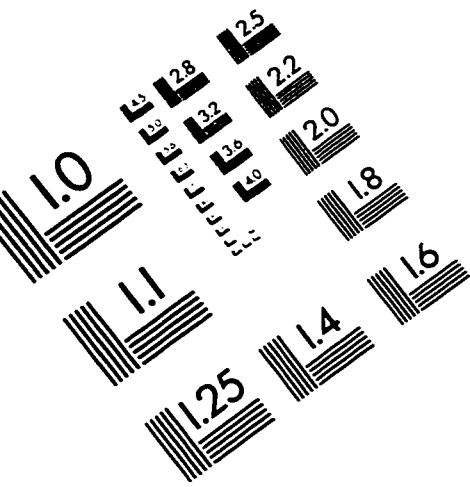
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1984 "Mainstreaming Content Analysis in Social Science: Methodological Advantages, Obstacles, and Solutions." Social Science Research 13: 1-19.

VITA AUCTORIS

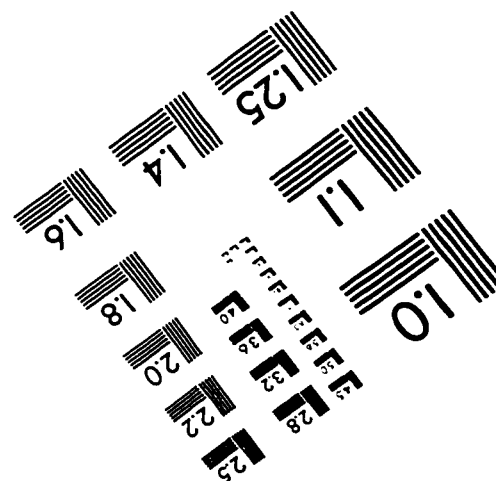
Lynda Smith was born in 1955 in Toronto, Canada. Following high school, she was employed for several years with Union Carbide as an unionized assembly line worker. In the late 1970's, Lynda decided to train as an executive chef. In 1981, she successfully completed a three year apprenticeship program and earned her Ontario journeyman's papers. Since 1985, she has been employed at the University of Windsor as the department head, of Food and Hospitality Services. Having both being employed as a unionized employee, and now being responsible for managing a workforce of over 300 unionized employees, Lynda became interested in the social dynamics of large work groups. Due to this interest, Lynda decided in 1986 to study sociology. In 1994, she graduated from the University of Windsor with a B.A. in Sociology. This thesis represents the final requirement for Lynda to graduate with a Master's degree in Sociology at the University of Windsor. She hopes to graduate in the fall of 1996.

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DETERMINANTS OF TEACHER
PARTICIPATION IN OUTDOOR EDUCATION:
A SURVEY OF KENT COUNTY TEACHERS

by

Lance Balkwill

A Thesis
Submitted to the Faculty of Graduate Studies and Research
through the Faculty of Education
in Partial Fulfillment of the Requirements for
the Degree of Master of Education at the
University of Windsor

Windsor, Ontario, Canada

1996

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ABSTRACT

The purpose of this study was to investigate the extent to which Kent County elementary school teachers involve students in outdoor education activities and to determine the factors that influence this involvement. Four models were developed for this investigation: (a) school climate (i.e., awareness of curriculum, perceptions of administrative support, and legal liability); (b) teacher burnout; (c) teacher's personality type; and (d) teacher's personal background (i.e., qualifications, experience, interest, and expertise). Information for the study was gathered by surveying 203 teachers. The survey consisted of: (a) an Outdoor Education Questionnaire generated by the researcher, (b) Holland's Vocational Preference Inventory (VPI), and (c) the Maslach Burnout Inventory (MBI). Fifty five percent of the surveys were returned with useable data. Two-tailed correlation and stepwise multiple regression analyses indicated that teachers were more likely to involve students in outdoor education activities if they: (a) scored high on the personal accomplishment subscale of the MBI, (b) were identified as having an investigative personality type, according to the VPI, (c) scored high on the awareness scale of school climate model, (d) had been involved in teaching outdoor education in the past, and (e) were involved in outdoor activities during personal time.

DEDICATION

This paper is dedicated to my parents, Gary and Dorothy Balkwill who have been the most significant educators in my life, especially in the outdoors.

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CHAPTER I INTRODUCTION

A. Background

Outdoor Education has long been recognized as an effective teaching strategy. Research has shown it to be a justifiable means of curricular enrichment and a vital method for achieving basic educational goals (Staley, 1983). Teaching out-of-doors allows students to be exposed to an increased amount of educational experiences, and to a greater variety of stimuli than would otherwise be accomplished in a traditional classroom. This "hands on" approach to experiential learning enhances cognitive and skill development while providing avenues through which self-concept and self-esteem can be cultivated (Knapp, 1989).

The Common Curriculum (1995) states that learning involves effort and self-discipline, resulting in the achievement of various learning outcomes. These outcomes are based on building healthy lifestyles and relationships, protecting the environment and developing global perspectives in attitude and behaviour. This type of global, holistic pedagogy, which has been mandated by the Ontario Ministry of Education and Training, seems to emulate the nature and philosophy of outdoor education.

An underlying assumption of this thesis is that outdoor education is a valid, pedagogical strategy for achieving positive learning outcomes with students. This is consistent

with the findings of Staley (1983), Knapp (1989), Bowyer (1990) and Balkwill (1995), and is promoted by the Ontario Teachers' Federation (Babcock et al., 1970, 1971), and the Ministry of Education and Training of Ontario (Common Curriculum, 1995).

B. Definition of Outdoor Education

Many terms exist surrounding the concept of learning and teaching in an outdoor setting. These include: outdoor education, outdoor recreation, and outdoor adventure activities. For the purpose of this study, this author has accepted the following as the operational definition of outdoor education:

Outdoor education: "An experiential process of learning by doing, which takes place primarily through exposure to the out-of-doors" (Priest, 1986, p. 13). This implies that any subject taught outdoors is making use of outdoor education teaching methodologies.

For the purpose of clarity, outdoor recreation and outdoor adventure imply that the activities, which usually take place in a natural setting, contain an element of physical activity, perceived risk or physical danger, or require a wilderness setting. Please note that outdoor recreation and outdoor adventures are forms of outdoor education but outdoor education does not necessarily involve outdoor recreation or outdoor adventure activities. Similarly, an outdoor educator is one who uses the outdoors

as a vehicle to present content from any subject area, not necessarily one who instructs outdoor adventure activities.

C. General Statement of the Problem

Many potential benefits exist in outdoor education, yet how many teachers are actually implementing outdoor education activities in the school setting? What hinders the implementation of outdoor education activities in schools? Some factors may be associated with school climate, including legal liability and funding, teacher burnout, personality type and personal background. Any one, or any combination of these factors could influence teachers when they consider involving students in outdoor education activities. Four models have been developed to address these factors. Each model consists of a cluster of related variables which will allow various configurations of these variables to be statistically examined.

School Climate Model

The issues surrounding a teacher's interaction with the school system are many and complex. Among these issues, several stand out as key issues that may affect the likelihood of a teacher involving students in outdoor education activities. The variables examined here have logical connections to outdoor education and are measurable within the context of this research. They include: (a) awareness of outdoor education as a viable teaching methodology, (b) awareness of outdoor education curriculum

guidelines, (c) awareness of the availability of outdoor education resources, (d) perceptions of administrative support, and (e) legal liability issues.

Burnout Model

Teacher burnout is an issue that affects one's enthusiasm for the job and the quality of one's work. Positive feelings of success and accomplishment in their jobs, as opposed to negative perceptions of emotional or physical exhaustion, would presumably influence the likelihood of involving students in outdoor education activities. The degree to which teachers feel burned out will be assessed and the possible effects on outdoor education will be examined.

Personality Type Model

Recognizing that each person is unique and different, it is, however, reasonable to expect there to be some distinguishable characteristics common to certain types of individuals. People interested in outdoor activities may exhibit similar personality traits. Teachers may also have identifiable personality types. These profiles, and the behaviours associated with them, may indicate the type of teacher who would be more likely to involve students in outdoor education activities. This research will examine these areas of interest and attempt to construct a profile of an outdoor education teacher.

Personal Background Model

It is possible that certain personal factors such as age, years of teaching experience, undergraduate major, interest and expertise, past outdoor education teaching experience, personal involvement in outdoor activities, and a teacher's related qualifications may indicate that he/she is more likely to involve students in outdoor education activities. These factors alone and in combination with the models explained above will be analysed to determine their effects on outdoor education in elementary schools.

Summary

Within the conceptual framework of the four models described above, teachers will be surveyed and their responses will be analysed to determine the factors that are most compelling as the potential driving force behind the propensity for elementary school teachers to implement outdoor education programs with students, or to avoid them. After addressing these issues, one may speculate as to the profile of a teacher who would be more likely to involve his/her students in outdoor education activities.

CHAPTER II

REVIEW OF THE LITERATURE

There is an abundance of literature addressing outdoor education. The following selections, which deal specifically with the models developed herein, will attempt to account for the use, or lack of use, of outdoor education teaching methodologies in elementary schools.

A. School Climate

The following is a review of selected articles presented in chronological order. They deal with certain job related factors that may affect teachers' involvement in outdoor education. Literature that addresses legal liability issues and funding as they pertain to outdoor education in school situations are then examined.

Bowyer (1990) reported on a study of Toronto teachers to identify the reasons associated with the avoidance of out-of-class science activities. The study involved a survey that used a ten-point scale ranging from 'most worthwhile' to 'worthless' to rate outdoor science activities. There were a significant majority of teachers that rated outdoor activities 'most worthwhile' to both students and teachers. Bowyer found it disappointing though, that only 30% of the intermediate teachers and 10% of the senior teachers were involved in outdoor science activities. Bowyer reported that their hesitancy to involve students in outdoor education activities was due to the following concerns as explained by

Bain (in Bowyer, 1990) :

1. Allocated class time was not sufficient to accomplish anything worthwhile;
2. Teachers lack the expertise for outdoor work;
3. Teachers do not want to be held responsible for any accidents that may occur and;
4. There is a lack of suitable area for field work.

(p. 37)

Following this, research was conducted over a two-year period to examine various aspects of the school climate in 18 elementary schools, three middle schools, and three high schools in six districts of the United States. Based on the data from this research, Anderson (1994) compiled the following four articles that identified some key factors in building and maintaining successful physical education programs. These factors included: (a) supportive teacher relationships, (b) teacher knowledge, (c) program credibility, and (d) administrative support. Albeit a study of physical education programs, similarities such as students being engaged in active learning situations, teachers implementing experiential teaching strategies and classes being conducted outdoors may permit the generalization to an outdoor education program. From this research, Anderson developed a checklist to evaluate the conditions within a school setting that may hinder program development. (see Appendix A). The following four articles

provided the basis for Anderson's checklist.

Gay and Ross (1994) reported on the importance of teachers working collaboratively. Effective teachers took advantage of informal situations such as brief chats in the hallway or sharing stories during free time in addition to the planning that took place during formal gatherings such as staff meetings and while working on specific group projects. These teachers effectively used each other to increase their awareness of teaching strategies, curriculum development, and available resources.

Petersen, Allen and Minotti (1994) indicated that professional knowledge was predominantly a function of experience, and that good teaching depended on many types of knowledge (e.g., content, teaching strategies, the students, and the culture of the school or district).

Kimiecik, Demas and Demas (1994) described ways to create a positive image and to establish credibility for physical education programs. They described five proactive approaches: (a) staying up-to-date through professional involvement, (b) committee involvement, (c) broadening horizons, (d) presentations, displays and announcements, and (e) parent and community involvement. However, they indicated that attaining support and credibility is largely dependent upon the quality of the program itself.

Butler and Mergardt (1994) reported that "gaining administrative support for physical education was a pivotal

factor in building and maintaining programs" (p. 43). Administrative support that led to successful programs came in the following ways: (a) trusting teachers to make decisions and run the program in the best manner possible and allowing teachers to select activities, based on their own strengths and based on student needs; (b) encouraging professional growth through clinics, seminars and workshops (even if it meant hiring substitute teachers, or paying the registration fees); (c) standing behind the teachers in justifying programs to parents and board administrators and; (d) dealing with financial pressures by using discretionary funds, obtaining grants, lobbying PTAs and trading resources and equipment with other schools.

A study conducted by Balkwill (1995) surveyed twelve Boards of Education, representing all regions of Ontario. Results revealed that London, Etobicoke, Hamilton, Waterloo, Wellington, Ottawa, and Lakehead Boards of Education had specialized Outdoor Education Centres that, in some cases, accommodated every student of that particular Board for one or two visits each year. Many other Boards including Essex, Kent, Toronto, Sault St. Marie Separate, and East Parry Sound had Board-approved curriculum guidelines that outlined appropriate outdoor education activities. It was also found that some Boards, or isolated schools, or individual teachers also incorporated outdoor education into the physical education program.

Of particular import to this paper, Balkwill reported that the Kent County Board of Education had two outdoor education documents entitled Mathematics, outdoor style (1972) and Field trips and outdoor education (Pepper, 1974) and had permission from the Metropolitan Toronto School Board to use the document Be Outdoorable (1984). Teachers also could refer to the Ontario Teachers' Federation Manuals Outdoor Education Part I (Babcock et al., 1970) and Outdoor Education Part II (Babcock et al., 1971). Some teachers in Kent County made use of Ministry of Natural Resources programs such as Project WILD, Focus on Forests, and Fishways, along with other teacher-made and Board approved outdoor education resource packages. Workshops and professional development seminars were conducted to promote these programs.

The promotion of outdoor education was also found in the Ministry of Education and Training of Ontario's document The Common Curriculum (1995). A thorough review of the 183 specific learning outcomes in The Common Curriculum revealed that over 43% mentioned outdoor education activities, either directly or indirectly, as ways to achieve desired learning outcomes. Many of these appeared as mandates of what shall be done with students to achieve these essential or specific learning outcomes. The following are examples of statements taken from The Common Curriculum outlining what students will have done by the end of either grades three, six, or

nine (i.e., mandates) or are examples of suggestions given in The Common Curriculum about how teachers can help students achieve those outcomes: (a) visit local natural areas such as fields, woods, wetlands and identify local native plants and animals; (b) visit provincial parks to learn about art forms of various cultures; (c) get involved in skiing, hiking, or birdwatching; (d) identify the patterns of the petals of a flower or the spiral of a shell; (e) use natural materials such as stone, bone, or wood to create artifacts; (f) observe the wind moving leaves; or (g) observe local wildlife to investigate the needs of living things. (See Appendix B for further examples)

The aforementioned articles generally advocate the use of outdoor education in the school setting. However, literature also exists that addresses some obstacles that may be encountered when promoting an outdoor education program.

For the purpose of this research, issues of legal liability will be considered to fall within the realm of school climate. Numerous pieces of literature that deal with this topic are available via ERIC searches, Internet queries, journal articles, policy documents and memos from various organizations, and transcripts from conferences and seminars. These items, which deal with safety, negligence, risk management, and liability are available in great quantities. The mere presence of these publications in such

numbers serves to indicate the degree of concern this area generates.

The following are concrete examples of cases cited in Hanna (1986) that were litigated in Canadian courts. These illustrate the need for extreme caution and justify legitimate hesitancy on behalf of the outdoor educator to engage in activities involving even minimal risk. Here are the verdicts from actual cases where activities, some involving outdoor pursuits, led to precedent-setting battles that were settled by the courts.

Walton v. Vancouver (1924) - A school board was held liable for allowing an unqualified teacher to supervise a shooting competition, during which a rifle backfired and injured a student.

Moddejonge v. Huron County Board of Education (1972) - An outdoor education coordinator was found negligent, and the board vicariously negligent, when two fourteen-year-old girls drowned at an unsupervised beach while on a field trip. The trip leader was a non-swimmer and no lifeguard was present. Total damages awarded were \$56 000.

Michalak v. Dalhousie College and University, Governors of (1983) - An eighteen-year-old girl fractured her fourth thoracic vertebrae while participating in a high-ropes course. She was originally awarded \$200 000. After the appeal her damages were lowered to \$30 000 due to a substantial recovery. (See Appendix C for other cases

involving litigations against school boards).

These examples of successfully litigated tort cases bring to the forefront of the educator's mind justification for avoidance of activities that involve inherent risk.

Tort law, simply put, deals with compensating victims who have been injured due to the action (or failure to act) of another (Hanna, 1986). Litigations in tort proceedings function to (a) establish the relative abilities of the involved parties to bear the financial loss, (b) to punish the wrongs committed, and (c) to discourage the repetition of the wrongful act.

Cases involving outdoor educators usually deal with allegations of negligence. Hanna (1986) describes negligence as an act or statement that is "reckless, careless, and/or involving judgmental error" (p. 28). The five criteria, which if proven, constitute a basis for legal action due to negligence are:

1. A duty of care owed by the defendant to the plaintiff, requiring that the defendant meet a certain standard of care.
2. A breach of the established standard of care or failure to conform to it.
3. Actual injury(ies) suffered by the plaintiff
4. A proximate connection between the defendant's conduct and the plaintiff's injury(ies)
5. No conduct by the plaintiff which will be

prejudicial to this action (i.e., voluntary assumption of risk). (Hanna, 1986 p. 29)

Specifically, for the outdoor educator, one can use the following test for liability when dealing with the moral obligations and legal implications of an outdoor leader's liability while involving participants in an outdoor activity program. The test to determine the outdoor leader's negligence falls within the realm of the five factors stated previously:

1. Determination of the duty owed by the leader to the participant.
2. A breach of that established duty; the failure to meet the prescribed standard of care.
3. Actual physical and/or mental injury to the participant
4. Proof that the defendant leader's negligence was the proximate cause of the participant's injury(ies)
5. Evidence showing that the participant did not voluntarily assume the particular risk which resulted in his injury(ies). (Hanna, 1986 p. 88)

The first of these criteria deals with duty of care. This implies that there is some relationship between the defendant and the plaintiff. In particular for the outdoor leader or teacher, the duty is to supervise, instruct, and train the participant comprehensively and safely in an outdoor activity (Hanna, 1986).

Once the duty of care is established and, in the event of an injury, the injury is attributed to the action of the teacher, tort negligence may be justifiably based on this breach of duty and standard of care. This is provided that the participant did not willingly accept the risk (i.e., signed a release waiver). Since elementary school teachers deal with children under the age of majority, and since an individual (even a parent) cannot sign away another's rights, the concept of voluntary assumption of risk and waivers will not be discussed in this paper.

Closely related to duty of care is standard of care. Standard of care refers to the degree to which the participant entrusts him/herself to another. This may vary depending on: (a) the age, intellect, emotional state and experience of the participant, (b) the difficulty of the activity, and (c) foreseeable risk. In dealing with age, the customary understanding that children are generally owed a higher standard of care than adults is illustrated in the following remarks of a Chief Justice while rendering his verdict, "Children, wherever they go, must be expected to act upon childish instincts and impulses, and those who are charged with a duty and caution towards them, must calculate upon this and take precaution accordingly" (in Hanna, 1986 p. 46). This standard of care, which extends to anyone standing *in loco parentis* -in the place of a parent- was articulated during a case in 1893 when it was stated:

The school master was bound to take such care of his boys as a careful father would take care of his boys and there could not be a better definition of the duty of a schoolmaster. Then he was bound to take notice of the ordinary nature of young boys, their tendency to do mischievous acts and their propensity to meddle with anything that came in their way. (in Hanna, 1986 p. 51)

The teacher may have a good idea of the students' expected behaviour and capabilities in the classroom, but when involved in outdoor activities, the teacher/leader has the duty to assess each student's capabilities, experience, intellect, and emotional state for him/herself before allowing participation in an activity. Although personal responsibility generally increases with age, it remains the duty of the teacher to recognize debilitating emotional stress as well as overconfidence and prevent those participants from taking undue risk. Assessing the situation using the standard of care expected of a reasonable and careful parent will be the comparative basis for determining if the teacher properly evaluated the likelihood of injury and its potential severity. Hanna (1986) cautions outdoor educators that gearing an activity to the average student leaves the less capable or less experienced students to possibly attempt feats beyond their means.

Difficulty of the activity is strongly related to the relative experience of each participant and the trust that

the teacher is not misleading them into a false sense of competence. This would be a negligent misrepresentation of the real risk to that participant.

Foreseeable risk is also closely linked to participant capabilities. Risks, depending on the activity, may include adverse weather, poisonous plants, wild animals, natural occurrences, the chance of participant illness, and all dangers associated with the activity itself. Many of these risks, and others, can be minimized by: (a) using proper equipment, (b) maintaining a reasonable student:teacher ratio, and (c) ensuring that the activities are appropriate for the competency and capacity of the students involved. At any rate, the teacher has the duty to assess the inherent risks to each individual of the particular group in all circumstances that may occur during the activity.

Weighing the aforementioned factors, not individually but in combination with all others, should guide the teacher in making prudent, reasonable decisions.

[A]n outdoor leader facing tort charges would be evaluated largely on the basis of the foreseeability he exercised in predicting the likelihood of one of his students/participants being injured, in the activity pursued, and in the manner he was directing it. (Hanna, 1986 p. 97)

As previously mentioned, there is an abundance of literature offering advice and guidance on how to minimize

the chance of an accident happening and to reduce the risk of being successfully sued. This is emphasized by Anglin et al. (1979) after reviewing the safety procedures of the Ministry of Community and Social Services' outdoor programs. They warned that:

Even for the most experienced and proficient participants, such activities may be hazardous if the weather is bad, the planning is inadequate, the equipment is deficient, or the leader is incompetent. (Section II - Outdoor activities)

To help protect oneself from successful litigation, the teacher/leader should possess actual training and certification in the activity in which the students are being involved (Hanna, 1986; Anglin et al., 1979, 1980; Provincial Sport Organization, 1987; van der Smissen, 1994).

It is also the responsibility of the agency (school board) for whom the outdoor leader/teacher works, to ensure that the teacher has the technical knowledge and skill, physical fitness, age, experience, judgement, certification required by law, and common sense to do the job (Hanna, 1986). In reflecting on some of the cases cited earlier, one can see the importance of having qualified people run programs, not only for legal reasons but to avoid unnecessary injuries in the first place. For example, in the Walton case the teacher was not trained in the use of firearms; in the Moddejonge case, the trip leader was

neither qualified (he was a non-swimmer), nor certified (as an aquatics lifesaver) to assume the role of lifeguard.

It was also recommended by Hanna (1986) that teachers should teach and guide activities that are within their personal comfort zone and well below their competency level. This will leave a safety margin of expertise for dealing with adverse or unexpected situations. The leader, whether paid or acting as a volunteer, must assume the role of a reasonable and prudent professional. By accepting a task, one is proclaiming one's competence (van der Smissen, 1994). Supervisory duties include management of behaviour, establishment and enforcement of rules and regulations and inspection of equipment.

Publications dealing with liability, risk management, and safety precautions can be found in great quantities from highly respected sources. The Children's Division of the Ontario Ministry of Community and Social Services produced a 52-page Report of the working group proposing standards and guidelines for outdoor/wilderness programming (Anglin et al., 1979); and a 35-page handbook entitled The Outdoor/Wilderness Programs Handbook (Anglin et al., 1980). In 1987, the Sport and Fitness Division of the Ontario Ministry of Tourism and Recreation published the Provincial Sport Organizations' Risk Management Manual; and in 1992, the Ontario Physical Education Association held a conference informing educators of Legal Liability and Risk Management

(McGregor, 1992). Also in 1992 Canoe Ontario published its Canoeing Safety Resource Manual (Williams, 1992).

Careful consideration of the aforementioned documents and legal ramifications lead one to suspect that fear of litigation plays an important role in deciding whether or not a teacher would be willing to involve students in outdoor activities, especially activities involving potential risk.

Funding of programs generally varies from Board to Board and from school to school. The Kent County Board of Education policy manual on outdoor education outlines funding guidelines as follows "The cost of an outdoor education programme shall be the responsibility of the school involved" and "transportation shall be within the budget allotted" or "shall be borne by the students and supervisors" (Pepper, p.28)

The literature that deals with issues labelled in this paper "school climate" tends to indicate that the availability of programs, resources, and workshops provides adequate opportunity for making teachers aware of outdoor education as a viable teaching methodology and increasing their experience and expertise in this area. However, there may be other issues such as teaching assignment and years of teaching experience that could affect their involvement. These will be addressed in the survey as possible reasons for the avoidance of outdoor education programs.

B. Teacher Burnout

Burnout of people in helping professions, and of teachers in particular, can adversely affect the lives of the many people who look to them for advice, positive reinforcement, guidance, or approval and those who rely on them to provide a service on which the rest of their lives may depend (Schaufeli et al., 1993)

Since 1980 when Maslach and Jackson designed the Maslach Burnout Inventory (MBI) to assess the frequency and intensity of perceived burnout among persons in helping professions, researchers have been examining and cross examining this tool. Development of the MBI was based on samples of workers in human services organizations including nurses, physicians, teachers, psychologists, psychiatrists, social workers, police officers, and lawyers.

The MBI is a 22-item self administered questionnaire that provides a measure of perceived burnout on three related but independent components. The subscales into which these questions are grouped for analysis are: (a) Emotional Exhaustion (nine items), (b) Depersonalization (five items), and (c) Personal Accomplishment (eight items). Gold (1984) explained the manifestations of these three areas of burnout as follows: The perception of emotional exhaustion occurs when someone feels that they can no longer give of themselves as they could in the past. Depersonalization is the aspect of the burnout syndrome where individuals express

negative and cynical attitudes toward others and, in particular, the people in their charge. Personal accomplishment reflects the perception that one is, or is not, achieving satisfying levels of fulfilment of the job and is or is not making a valuable contribution to the work.

In the original inventory, each statement was rated twice, once for frequency of occurrence of that particular feeling or attitude and once for the intensity of its manifestation. Frequency ratings range from 1 (a few times a year) to 6 (every day). Intensity ratings range from 1 (very mild, barely noticeable) to 7 (major, very strong). Respondents may also indicate that they "never" experience a particular feeling or attitude. Separate scores for each of the subscales on both ratings are generated. High mean scores on the Emotional Exhaustion and the Depersonalization subscales with a low mean score on the Personal Accomplishment subscale indicate the subject perceives him/herself as being "burned out". These scores do not actually categorize a person as "burned out" or "not burned out", but rather allow the respondent to be placed on a continuum from "more burned out" to "less burned out".

Teachers who feel burned out may have more negative perceptions of themselves, their work, and the students. This cynicism can have a detrimental effect on their students, their colleagues, and their families. Teacher burnout has become "a problem of increasing professional

concern" and may be manifested through "irritability, fatigue, frustration, and anger" (Gold, 1984 p. 1009).

Powers and Gose (1986) reported on the Maslach and Jackson finding that burnout can lead to job turnover, absenteeism and low morale. The following section will examine the literature in chronological order, surrounding the implementation and validation of the Maslach Burnout Inventory (MBI). It will focus chiefly on the use of the MBI as it pertains to the teaching profession.

Iwanicki and Schwab (1981) identified the MBI as a useful tool for assessing perceptions of burnout among helping professionals yet they were interested in determining the validity and reliability of the MBI when used with a sample of teachers only. A sample of 469 randomly selected Massachusetts teachers completed the MBI (entitled Survey of Professional Occupations to minimize reactive effects). These educators consisted of classroom teachers, special education teachers and guidance counsellors.

Validity was examined using principal factor analysis with iterations and varimax rotation. Iwanicki and Schwab reported that when used with educators, the MBI measured the same basic constructs as those of the original inventory. They also concurred with authors of the inventory that a negative correlation was found between Emotional Exhaustion and Depersonalization on both the frequency and the

intensity ratings. In assessing construct validity, Iwanicki and Schwab found a moderately strong relationship between the frequency with which feelings associated with burnout are felt and the intensity of those feelings. By contrast though, they recommended that when using the MBI with educators, the Depersonalization subscale should be separated into job-related and student-related factors.

Iwanicki and Schwab used Chronbach's coefficient alpha to determine the reliability of the MBI. Results indicated an acceptable measure of reliability for both frequency and intensity ratings on the Emotional Exhaustion (.90 & .89) and Personal Accomplishment (.76 & .79) subscales and on the job-related factor of Depersonalization (.79 & .80). These compare very closely to the results attained from the administration of the MBI to persons in the helping professions in general. It was noted, however, that there was a low reliability score on the student-related factor of Depersonalization (.66 & .66). Using the Spearman-Brown formula, Iwanicki and Schwab determined that at least three similar items would need to be added to this factor to raise its reliability to .80.

It was concluded that the MBI held sufficient construct validity and reliability (within the parameters mentioned above) to be used with teachers. However, since there was such a high relationship between the frequency of feelings and the intensity of feelings, it may not be necessary to

administer both dimensions to educators, thus reducing the administration time of the inventory.

Gold (1984) administered the MBI to 462 classroom teachers (81% females) from Southern California to empirically test the factorial validity of the inventory. Eighteen schools from six school districts were involved in the replication of the Iwanicki and Schwab (1981) study that would allow comparative results either to strengthen or to refute the reliability and construct validity of the MBI. Prior to the administration of the questionnaire, the title of the Maslach Burnout Inventory was changed to Human Services Survey, to minimize influencing teachers' attitudes. Frequency and intensity ratings were scored separately, and principal factors and varimax rotation were used to analyze the data.

Gold concluded that the MBI demonstrated factorial validity for each of the three subscales that were hypothesized and tested (i.e., Emotional Exhaustion, Depersonalization, and Personal Accomplishment). Both dimensions of the MBI (frequency and intensity) yielded comparable factor structures. It would appear that either scoring system would suffice in identifying teachers who are perceiving themselves as becoming burned out.

This study supported the results of the Massachusetts survey done by Iwanicki and Schwab (1981). A high degree of invariance was reported between the two studies. This lends

credence to this particular inventory as a valid test of perceived burnout among teachers. Gold did, however, reiterate the cautions expressed by Iwanicki and Schwab concerning the interpretation of the Depersonalization scale because of the low reliability estimates of .54 and .63.

Reliability and construct validity were again tested in a study by Powers and Gose (1986). Seventy-two university students including 25 males and 47 females who were enrolled in the College of Education at the University of Arizona participated in this study. As did Iwanicki and Schwab (1981), Powers and Gose, used the MBI according to the instructions outlined by the original authors, Maslach and Jackson. Chronbach's coefficient alpha generated estimates for the frequency scores of the Emotional Exhaustion (.86), Depersonalization (.63) and Personal Accomplishment (.72) subscales. The intensity scores of these three subscales produced alpha estimates of .84, .54, and .79 respectively. Powers and Gose extracted four principal factors from both the frequency and intensity dimensions and used varimax rotation to analyze the factor loadings on each subscale.

Powers and Gose summarized by stating that their results furnished some empirical support for the reliability and factorial validity of the MBI when used to measure emotional exhaustion, depersonalization, and lack of personal accomplishment.

Lee and Ashford (1990) compared Maslach's three-factor

model with a two-factor and a single factor inventory. They do acknowledge the convincing support favouring the results of using the three subscales of emotional exhaustion, depersonalization, and personal accomplishment as measures of burnout, but note that the factors of depression, strain, disillusionment, and various coping strategies may affect the manifestation of burnout. Lee and Ashford explain that both physiological and psychological symptoms combine in multiplicative ways to become observable as the syndrome of burnout. Emotional exhaustion parallels the concept of strain and is linked to anxiety, tension, physical fatigue, and insomnia. Depersonalization is a coping strategy engaged to minimize the depletion of one's emotional energy. This is done by treating people as objects or numbers. They speculated that reduced personal accomplishment was the outcome of a "stress-strain-coping sequence" (p. 744). This reflects the use of control and the motivation one assumes in one's work. The perception of mastery of one's employ and the appraisal of one's performance, if negative, may be associated with a sense of helplessness.

Lee and Ashford's data were collected from a sample of 181 human service workers holding supervisory and managerial positions. All three dimensions of the MBI were administered, yet based on recommendations found in previous literature, these researchers collected data for the frequency scale only. Items were grouped into three factors

in each of the three dimensions and the analysis was based on those composite factors using a covariance matrix input model. Statistical analyses were performed using factor analysis with the LISREL VI computer program, which included the parsimonious fit index. In the one-factor model all nine indicators were designed to load together. In the two-factor model, Emotional Exhaustion and Depersonalization were specified to load together and Accomplishment indicators loaded on the second factor. In the three-factor model, each dimension loaded separately.

Results confirmed the hypotheses that Emotional Exhaustion and Depersonalization were strongly associated with physiological and psychological strain, and Personal Accomplishment was strongly correlated with perceptions of performance and the use of control. Lee and Ashford also found, although unexpectedly, a relationship between helplessness and both Emotional Exhaustion and Depersonalization. This was contrary to their initial belief that helplessness was related to Personal Accomplishment. They speculated that helplessness was akin to strain which many dampen one's enthusiasm and motivation, thereby triggering the burnout process itself. Another rationale for these results could have been the wording used in the MBI. Statements designed to assess Emotional Exhaustion and Depersonalization were negatively worded whereas statements soliciting data regarding Personal Accomplishment were

positively worded. Since Lee and Ashford used the MBI with supervisors and managers, the data itself may not be accurately generalized to teachers, although it is important to note that their concluding statement supports the use of the MBI as a useful tool in measuring perceived burnout. They stated that "The three-factor model was superior in fit to the two- and one-factor models, with the first two factors highly correlated." (p. 745)

Byrne (1991) conducted a study to validate the factorial validity of the MBI using 543 teachers (54% males and 46% females) from six intermediate schools, four secondary schools, and one university. Byrne explained the dimensions of the MBI as follows: emotional exhaustion involves feelings of fatigue as one's emotional energies become drained; depersonalization is the development of negative and uncaring attitudes toward others; reduced personal accomplishment consists of a deterioration of self-competence, and the dissatisfaction with one's achievements. This study extended the exploratory factor analytic procedures used by most others, to directly test the three-factor structure using a confirmatory factor analytic approach. Given the limitations recognized by previous researchers, this was to give more construct validity to fully establish the psychometric soundness of the instrument. Initial hypotheses were rejected and exploratory factor analyses were conducted for the two-, three-, and

four-factor models. Both the two- and four-factor structures were rejected for substantive as well as statistical reasons. They did not yield results that could be interpreted meaningfully. Given basic substantive and statistical considerations, the three-factor structure was deemed to be optimal in representing the data for each group of educators. Most items did, in fact, load on their expected target factors.

Post hoc analyses discovered that five items may not be psychometrically sound for use with university professors due to undesirable cross-loading into factors other than the one it was intended to represent. Byrne's (1991) concluding statements revealed strong support for the MBI as a valid and reliable tool for measuring perceived burnout in elementary and secondary teachers. Byrne went on to speculate that the purpose of work for these teachers is primarily focused on helping the students to learn; therefore, emotional exhaustion and depersonalization are inversely related to personal accomplishment. The rationale was that the former two items would be impediments to student achievement, thereby affecting a teacher's perception of the latter.

A longitudinal study of teacher burnout was conducted by Capel (1991). This involved administering a questionnaire to 640 teachers in September, February and June of one school year. Regression analyses were conducted to determine

the predictive influence of the burnout variables over time. Profile analyses investigated changes in the individuals over time. The questionnaires consisted of the MBI being integrated with other scales. Capel stated that

Burning out results in the long-term gradual erosion of important professional, technical, psychological, and social resources. Burnout occurs when the teacher shows a significantly reduced capability for effective performance with students, due to the substantial depletion of critical resources. (p. 36)

Basically, burnout was the negative consequence of long term stress, and stress was explained as a response syndrome of negative effects. Based on prior research, Capel stated that teachers experience stress in a clear pattern of a regular cycle and the highest degree of stress was found in December and June. Elementary teachers appeared to experience four strong peaks of stress during a ten-month school year, with the possibility of recovery from stress being good in the spring term.

The results from this longitudinal study revealed that no definite pattern of increasing stress emerged over the course of the study, as there was significant variation in the scores at different times of the year. Burnout levels were fairly consistent over the duration of the study. This refutes the hypothesis that burnout is the process of *wearing down over time*. This study concluded that "burnout

is very personal in nature" (p. 44) and may be influenced by a multitude of factors that may or may not be directly related to the job.

Starnaman and Miller (1992) agree that burnout is an individual, psychological and negative phenomenon. It occurs within the individual and may begin with job dissatisfaction or job-related tension. They used the MBI with 182 teachers to assess their degree of stress and hypothesised correlations with various exogenous variables such as, workload, role conflict, and role ambiguity. They identified the outcomes of excess stress to be considerations of leaving the profession or merely continuing to teach at a "minimal level of involvement" (p. 40).

Also in 1992, Walkey and Green performed a study examining the replicable factor structure of the MBI. They indicated that when the three factors, as indicated in the Inventory, were rotated "identical three-factor solutions, reflecting the expected factor structure, were found" (p. 310). These results provided strong support for the presence of the three factors identified by the authors of the Inventory and indicated that the features of the MBI were extremely robust. In their summation, they recommended that Emotional Exhaustion and Depersonalization be thought of as the *core of burnout* and Lack of Personal Accomplishment was closely associated with these two.

The salient points of this review of the literature

germane to teacher burnout are reiterated here as they have implications for the current study.

The MBI is a valid, reliable, and robust instrument for assessing the degree to which human services personnel, including teachers, perceive themselves as becoming "burned out". (Byrne, 1991, 1994; Capel, 1991; Iwanicki & Schwab, 1981; Powers & Gose, 1986; Walkey & Green, 1992).

Burnout is individual in nature (Capel, 1991) but its causes are closely related to job related factors (Starnaman & Miller, 1992). Therefore, the MBI may be used to evaluate a person's perceptions of oneself rather than to evaluate the profession itself.

Levels of teacher burnout fluctuate over the course of the school year and there is good recovery from stress in the spring term (Capel, 1991).

Outcomes of excess stress, leading to burnout, included considerations of leaving the profession or merely continuing at a minimal level of involvement (Starnaman & Miller, 1992). The latter point has implications for a lack of teacher involvement in additional programs such as outdoor education.

Based on this review of the literature surrounding the MBI this researcher feels that this inventory will generate reliable, valid data for analysis in this research.

C. Personality Type

Personal preferences and behaviours may be influenced

by the interaction of a variety of cultural and personal forces such as social class, physical environment, peers, and parents. The question "What type of people are interested in outdoor education?" will be addressed by first examining various personality types.

Holland (1973) identified six personality types by which people could be characterized. Resemblance to a particular type is reflected in one's personal traits and behaviours. These, in turn, affect one's preference for certain activities, interests and vocations. Based on the principle that "The choice of vocation is an expression of personality" (Holland 1973, p. 6), Holland developed the Vocational Preference Inventory (VPI) which consists of a list of 160 occupations to be rated by the subject as interesting or uninteresting. Scores provide an indication of one's vocational preference, which mirrors one's personality type. Personality types, according to Holland are: (a) realistic, (b) investigative, (c) artistic, (d) social, (e) enterprising, and (f) conventional. The following is a brief explanation of each personality type and the vocations associated with them.

Realistic (R)

People categorized as realistic tend to show preference for activities that involve the manipulation of objects, tools and machines. They perceive themselves to have athletic ability and to be persistent, practical, and

masculine. Realistic individuals tend to seek technical, skilled and labouring occupations.

Investigative (I)

People categorized as investigative tend to prefer activities involving the investigation of biological and physical phenomena. They report themselves to be curious, intellectual, analytical, and introverted. They tend to have mathematical and scientific abilities. Investigative individuals tend to seek scientific occupations.

Artistic (A)

People categorized as artistic tend to prefer the creation of art forms including language, visual art, music and drama. They perceive themselves to be expressive, intuitive, feminine, and impulsive and they seem to have an aversion to systematic, ordered activities. Artistic individuals tend to seek artistic, literary and musical occupations.

Social (S)

People categorized as social are generally cooperative, friendly, generous, feminine, kind and understanding. There tends to be a lack of scientific and mechanical ability and an aversion to ordered, systematic activities. Social individuals tend to seek educational and social welfare occupations.

Enterprising (E)

People categorized as enterprising tend to show

persuasive competencies used in the manipulation of others for personal or economic gain. They tend to be aggressive, self confident, adventurous, argumentative, domineering, and impulsive. Enterprising individuals generally possess speaking abilities yet lack scientific abilities and seek sales and managerial occupations.

Conventional (C)

People categorized as conventional tend to show preference for clerical, computational and organizational duties such as maintaining records, filing materials, and manipulating data. They perceive themselves to be conforming, obedient, efficient, inflexible and having numerical ability. There tends to be an aversion to exploratory or unsystematized and artistic activities. Conventional individuals tend to seek office and clerical occupations.

Morton et al. (in press) conducted a study involving 312 university students in Ontario who were on the teaching career path. They reported that "Of the numerous devices available to assist guidance counselors in vocational guidance Holland's (1985) Vocational Preference Inventory (VPI) is one of the easier instruments to use." (p. 1). They also reported that the VPI may be utilized to explore the behavioural characteristics that may have a bearing on teaching practices. It was also reported that the reliability, internal consistency and validity of the VPI is

satisfactory and encouraging when used as measures of personality scales.

Based on Holland's (1973) descriptions of personality types, this study will investigate whether or not outdoor educators (and people interested in outdoor education) have common personality types.

D. Personal Background

Presented here is a review of the available literature addressing the issues of expertise, qualifications, and outdoor education teaching experience as they pertain to the likelihood of a teacher being involved in outdoor education programs with students.

Pepper (1974) prepared guidelines for organizing field trips and outdoor education programs within the Kent County Board of Education. It was expressed that when considering implementing an outdoor education program at the elementary school level, the major concerns focused on the teacher (specifically interest, apprehension, and inexperience). To help deal with this, strict policies on teacher:student ratios were stated, limitations were set on the types of activities that would be approved, and specifications for the teacher/supervisor's qualifications were expressed.

Additional time is often required to be spent to ensure quality programs are being offered. It is a policy of the Kent County Board of Education that an advance visit be made to the site by the supervising teacher for any outdoor

education programme (Pepper, 1974). The Noisy River Environmental Education Centre teacher's handbook (1987) also outlined the extra time teachers should dedicate to outdoor education programs. It was suggested that a teacher can greatly enhance the success of the program through careful pre-planning, and well-chosen follow-up activities. Their booklet suggested more than 21 preliminary steps to be completed by the teacher before visiting the centre.

A review of the Manual of procedures and criteria for outdoor education programs (1993) of the Muskoka Board of Education revealed stringent guidelines regarding the experience and qualifications required by teachers on outdoor education trips. It was stated that an outdoor leader is one who "is a qualified teacher and who holds additional qualifications" and "the teacher with the most expertise in the activity shall make safety related decisions" (p.2).

Many of the issues identified in this research as personal background factors are intertwined with the school climate model, the burnout model, or the personality model. The literature rarely deals with these items individually, however when developing the four models for the purpose of this research and for the predictions and analyses that follow, individual factors have been isolated.

Summary

Literature suggests that outdoor education is a sound

teaching strategy, and there are sufficient resources available to teachers across Ontario, yet many teachers are reluctant to involve students in outdoor education activities. The following reasons for this reluctance were implied in the literature: (a) there are many school-related factors with which teachers must contend, (b) teachers are burned out, (c) teachers do not have the personality profile suited to outdoor education, or (d) certain personal factors affect teachers' interest and involvement in outdoor education activities. The following chapter offers predictions that may account for the current trends in the use of outdoor education activities by teachers within the Kent County Board of Education.

CHAPTER III

PREDICTIONS

Based on the review of pertinent literature, the following predictions are advanced according to the four models that have been developed. The analysis of these models will attempt to explain the extent of student involvement in outdoor education and will seek to identify any predictors that may affect elementary school teachers' propensity to involve students in outdoor education activities.

School Climate Model

Prediction one: Awareness

Teachers who are more aware of: (a) outdoor education as a viable teaching methodology, and/or (b) policy and curriculum guidelines, and/or (c) the availability of resources will be more likely to involve students in outdoor education activities. This prediction is based on Anderson's (1994) research on teacher relationships and teacher knowledge in developing successful school programs.

Prediction two: Administrative support

Teachers who perceive that they have the support of their administrators will be more likely to involve students in outdoor education activities. This prediction is based on Anderson's (1994) research on administrative support in developing successful school programs.

Prediction three: Legal liability

Teachers who believe that outdoor education involves greater risk of legal liability will be less likely to involve students in outdoor education activities. This prediction is based on research outlining some defenses against litigation (Hanna, 1986; van der Smissen, 1994).

Burnout Model

Prediction four: Burnout

Teachers who perceive themselves to be experiencing emotional exhaustion and depersonalization will be less likely to involve students in outdoor education activities, whereas teachers who score high on the personal accomplishment subscale will be more likely to involve students in outdoor education activities. This prediction is based on research by Lee and Ashford (1990) and Starnaman and Miller (1992) outlining how burnout affects teachers.

Personality Type Model

Prediction five: Personality Type

There will be a relationship between the degree to which a teacher involves students in outdoor education activities and the following (teacher) personality types listed in order from suspected strongest correlation to weakest: realistic, investigative, social, enterprising, conventional, artistic. This prediction is based on this researcher's interpretation of Holland's (1973) personality profiles as compared to individuals known to engage in

outdoor activities.

Personal Background Model

Prediction six: Age

Teachers in the 20-30 year old range will be more likely to be involved in outdoor education activities with students. The basis of this prediction lies in the notion that younger teachers are more involved in these types of activities and are willing to accept and try new teaching methods.

Prediction seven: Years of teaching experience

Teachers in the ranges of 4-7 and 8-12 years of teaching experience will be more likely to involve students in outdoor education activities. This prediction is based on the experience of this researcher that teachers in the first three years of their career tend to focus on learning curriculum content and developing effective discipline procedures. They tend to remain within a controlled environment such as that provided by their classroom.

Prediction eight: Undergraduate major

Graduates from kinesiology, science, and biology will be more likely to take students outdoors. This prediction is based on this researcher's experience that it is more common and, more readily accepted to see teachers in these areas taking students outdoors without being perceived as being engaged in a non-academic activity. Whereas teachers from other subject areas may not be afforded this tolerance.

Prediction nine: Interest and expertise

Teachers who show interest in outdoor education and those who have expertise in outdoor activities will be more likely to involve students in outdoor education activities. This prediction is based on the logical connection between what one is interested in and what one does.

Prediction ten: Personal involvement

Teachers who are involved in outdoor activities in their leisure time will be more likely to involve students in outdoor education activities. This prediction is based on the logical connection between one's habits and practices in one's personal life and one's habits and practices at work.

Prediction eleven: Outdoor education teaching experience

Teachers who have experience teaching outdoor education in the past will be more likely to involve students in outdoor education activities. This prediction is based on a logical connection made through this researcher's intuition.

Prediction twelve: Qualifications

Teachers with outdoor education qualifications or other related qualifications will be more likely to involve students in outdoor education activities. This prediction is based on a logical connection made through this researcher's intuition.

To address these 12 predictions, a comprehensive, and specially designed instrument would be needed. The likelihood of finding one published instrument to address

all these factors is doubtful. Since inventories currently exist that address personality and burnout, they were used. However, a questionnaire to specifically address the outdoor education issues and related demographics was created.

CHAPTER IV

DESIGN AND METHODOLOGY

A. Pilot Study

A pilot study involving seven colleagues was performed to check the clarity, validity and appropriateness of the instructions and the questions of the entire survey. Initial contact of these selected individuals was made by telephone. The purpose of the study and the nature of the instrument to be used was explained and a request for participation was extended. A package containing a cover letter, an evaluation page, the Outdoor Education Questionnaire, the Maslach Burnout Inventory, the Holland Vocational Preference Inventory and a return envelope was sent. These teachers were asked to: (a) complete the survey according to the instructions and record the time taken, (b) make notes on the evaluation page of any confusing or unclear instructions, (c) give positive and/or constructive feedback regarding the survey, (d) refrain from discussing it with anyone and, (e) return it in the envelope provided to ensure confidentiality.

Comments from the pilot study subjects noted on their evaluation pages included: (a) "I liked the idea of the instruction 'Please mark on the line'. Therefore, people can't be too wishy-washy." (b) "Clear instructions and good questions." (c) "Very clear and concise. The opportunity for clarification and withdrawal from survey are good ideas."

(d) "The survey looks very professional." (e) "Everything was straight forward. You covered all aspects of outdoor education." (f) "Everything was very clear to me. The cover letter and the clarity of the instructions were excellent."

Based on the feedback received from the pilot study and upon final review of the instrument, "golf or tennis" was added to the list of personal involvement activities, "art" and "health" were added to the list of rotary subjects, and "undergraduate major" was repositioned on page one of the Outdoor Education Questionnaire to reduce the possibility of missing this item. Since it was felt that these changes would not significantly skew the results, the pilot study surveys were included in the data analysis.

Finally, the pilot study instructions and the evaluation page were removed, the Outdoor Education Questionnaire was copied on recycled paper (both sides), then collated with the VPI and the MBI, and prepared for final distribution in late April.

B. Subjects

The target population for this study included those persons employed by the Kent County Board of Education who had full time teaching duties. Using the most current seniority list, all names not representative of the population of interest were eliminated (i.e., principals, vice principals, consultants, secondees, board office personnel, teachers on leave, those who participated in the

pilot study, and anyone else familiar with the preliminary workings of this study). After deciding that a sufficient amount of data could be gathered from approximately 110 surveys, and estimating that 45% would be unreturned or incomplete, approximately 200 surveys would need to be distributed. An equal distribution of males and females was desired so pertinent data was entered and the SPSS PC+ computer statistics program generated a sample of 98 males and 98 females. Including the pilot study subjects, total sample size was 203.

C. Instrumentation

Survey research was conducted to obtain immediate information from such a large sample. The survey consisted of an Outdoor Education Questionnaire, the VPI and the MBI.

Based on a review of the available literature, the researcher developed a five-part Outdoor Education Questionnaire (see Appendix D). Part A of the questionnaire generated demographic information such as gender, age, undergraduate major, years of teaching experience, present teaching assignment, prior teaching experience in the area of outdoor education, and related qualifications. Current and past personal involvement in outdoor education activities were measured on a four-point Likert-type scale. This type of scale is easy for the subjects to understand and complete. It simply requires a checkmarks to generate the frequency data required by the researcher for entry and

analysis. The information from Part A was used in attempting to construct a profile of an outdoor education teacher. Part B consisted of 21 items and used the same four-point Likert-type scale as Part A. This generated information regarding the frequency of current student involvement and past student involvement in outdoor education activities by the teachers surveyed. In part C of the questionnaire, 24 items surveyed the teachers' opinions toward the implementation of outdoor education programs. A four-point Likert-type scale forced the respondents to choose the option that most accurately indicated their beliefs. Choices included "strongly agree", "agree", "disagree", "strongly disagree". Questions were randomly presented. Some questions were positively worded and some were stated negatively in order to generate thoughtful responses. For the purposes of analyses, they were designed in groups to generate information in the following areas: (a) personal interest and expertise teaching in outdoor activities, (b) awareness of outdoor education as a teaching methodology, (c) awareness of outdoor education curriculum guidelines, (d) awareness of the availability of outdoor education resources, (e) perceptions of bureaucratic or administrative support, and (f) feelings toward the risk of legal liability.

The final two parts of the Outdoor Education Questionnaire invited teachers to express their thoughts and

offer any comments that may help in interpreting the results.

Holland's Vocational Preference Inventory was administered to gather information regarding the vocational preferences and, hence the personality types of the respondents.

There are numerous statistically sound instruments for measuring burnout in professionals. The one most suited for this particular application was The Maslach Burnout Inventory - Educators Survey. It was specifically designed to assess the degree to which teachers felt physically and emotionally burned out and the degree to which they felt they were accomplishing worthwhile goals with students. Sufficient copies of the inventory, a manual and a scoring key were purchased from Consulting Psychologists Press Inc., California.

D. Procedures

Request for approval was sent to the Educational Research Ethics Committee of the University of Windsor (see Appendix E). Upon approval, a letter was sent to Mr. B. Asselin, Superintendent of Education - Elementary, Area II (see Appendix F). This letter requested permission to conduct this survey and to use the Board courier for the distribution and return of the questionnaires. A letter endorsing the research was also requested. Approval from the Board was granted to conduct the study and to use the

Board's interschool courier, yet in accordance with Board policy a letter of endorsement was not provided.

On April 15, a package containing a cover letter and instructions (Appendix G), the survey, and a return envelope was sent to each subject. The letter explained the purpose and importance of the research, assured confidentiality and provided instructions for completing and returning the survey by May 3.

Three days after the requested deadline had passed, an E-mail was sent to each school in Kent County. The message expressed appreciation to all staff members who received and completed the Outdoor Education survey and reminded those who did not return it (completed or not), to please send it as soon as possible.

E. Limitations of the Design

The part of the survey entitled "Outdoor Education Questionnaire" was generated by this researcher to address the issues of interest to this study. This may have been a limiting factor since validity and reliability coefficients had not been calculated.

A four-point forced-choice Likert-type scale for responses was used to generate decisive results by forcing subjects to describe most accurately how they felt. This may, however, have caused some frustration if undecided on a response.

Other limitations, over which the researcher had no

control once the instrument was distributed, included: (a) the subjects' understanding of the statements as written, (b) the subjects' preconception of outdoor education (c) the sincerity of the responses, (d) the percentage of unanswered items, (e) the percentage of unreturned surveys, and (f) the inability to determine specific reasons that teachers did, or did not return, the survey.

F. Data Analyses

The focus of the analyses was to identify the type of teacher who would be more likely to involve students in outdoor education activities. Subjects' responses for the Outdoor Education Questionnaire, the scores from the VPI and the scores from the MBI were coded as numerical values and were entered into a SPSS-PC+ computer database. Once the responses for each variable were entered as numerical values, commands were written to the SPSS-PC+ statistical analysis computer program to generate frequency statistics, and perform correlation analyses and stepwise multiple regression analyses. Frequency commands generated response percentages, maximum, minimum, range, mean and standard deviation scores of selected items or variables. Correlation analyses were calculated to assess the strength of the relationships between the dependent variable "current student involvement" and each independent variable. Correlation coefficients are reported at the .01 or .001 level of significance. Stepwise multiple regression analysis

was used to examine multiple variables. One variable was added on each step of the analysis beginning with the most significant. Beta coefficients and R^2 values were reported for the variables in the equation (i.e., within .05 level of significance). Beta coefficients were also reported for variables not in the equation. These values indicated the relationship and the predictability of the independent variables influencing student involvement in outdoor education.

Dependent Variable

The dependent variable was designed to indicate the frequency of "current student involvement" in outdoor education activities. Scores were generated by examining the responses in Part B of the Outdoor Education Questionnaire. Here, teachers indicated the number of times during the current school year they involved students in outdoor education activities in any subject area. The four levels of the response scales were assigned the values zero, one, two, and three. This reflected the level of involvement in the activities listed. If a subject indicated only the activities in which he/she was involved, missing values were treated as if he/she was not involved and zero was entered. By computing the sum of the values assigned to the response scale, a numerical score was generated. This served as an indicator of current student involvement and became the basis for all comparisons. If the Outdoor Education

Questionnaire, overall, was not satisfactorily completed, the entire survey was discarded since the dependent variable would not be available for analysis. This resulted in 112 surveys suitable for analysis.

Independent Variables

Analyses were computed using the factors within the four models as independent variables. The relationship between "current student involvement in outdoor education activities" and these independent variables was examined to determine their contribution to the variance within the dependent variable.

School Climate Variables

School climate variables included awareness, perceptions of administrative support, and perceptions of legal liability issues.

Awareness scores were generated from the responses to questions 4, 5, 13, 15, 16, 17, 18, 20 and 23 of Part C of the Outdoor Education Questionnaire. These responses indicated teachers' awareness of: (a) outdoor education as a viable teaching methodology, (b) policy and curriculum guidelines, and (c) the availability of resources. Administrative support scores were generated from the responses to questions 6, 7, 19, and 22 of Part C of the Outdoor Education Questionnaire. Perceptions of liability issues were measured by the responses to questions 8, 21, and 24 of Part C of the Outdoor Education Questionnaire.

The four levels of the response scale used for these variables were assigned the values zero, one, two, and three. This reflected the degree to which subjects agreed or disagreed with the statements.

Unanswered questions were assigned a value of 1.5. This indicated neither agreement nor disagreement since the scale ranged from zero to three.

Burnout Variables

Burnout scores were generated for each of the three subscales of the MBI. Emotional exhaustion was measured by the responses to nine items, depersonalization was based on five items, and personal accomplishment had eight items. Each item was rated by the subject on a scale from zero to six to indicate how often these feelings are experienced. Zero indicates never and six indicates every day. The sum of the scores within each subscale was calculated. This produced a numerical value for each of the three subscales. These values were compared to the MBI Scoring Key to indicate low, moderate, or high levels of burnout for EE, DP and PA. These scores were entered into the SPSS-PC+ database. If the MBI was not satisfactorily completed, all items were treated as "no-response". Of the 112 completed surveys, 5 subjects did not satisfactorily complete the Maslach Burnout Inventory. This reduced the number of subjects to 107 that were used for analysis of the variables measured by the MBI. If an item was left unanswered, the

mean of the items in that subscale that were answered was calculated and that value was entered for the missing score. The sum of the scores was then calculated and entered into the database.

Personality Type Variables

Personality types were measured by Holland's Vocational Preference Inventory in the following categories: realistic, investigative, artistic, social, enterprising, conventional, self-control, masculinity-femininity, status, infrequency, acquiescence. Scores were tabulated according to the VPI Form HS Answer Sheet and a numerical value for each scale was recorded. Raw scores were converted to z-scores to allow accurate comparisons among the 11 variables. To deal with missing scores, respondents who selected only the items of interest to them, and left the others blank were scored as if they answered "no" to those missing items. If the VPI was not satisfactorily completed, all items were treated as "no-response". Of the 112 completed surveys, 12 subjects did not complete the Vocational Preference Inventory. This reduced the number of subjects to 100 that were used for analysis of the variables measured by the VPI.

In an attempt to construct a profile of the type of teacher interested in outdoor education activities, correlation coefficients and regression coefficients were calculated. This would provide an indication of the relationship between each personality type and current

student involvement.

Personal Background Variables

Personal background variables included: age, years of elementary teaching experience, undergraduate major, interest and expertise in outdoor education, past personal involvement, current personal involvement, past student involvement, past outdoor education teaching experience, outdoor education teaching qualifications and other related qualifications.

Demographic data were generated by the responses to Part A of the Outdoor Education Questionnaire. Unanswered items or missing values were treated as "no-response" and reduced the number of subjects used for analysis of that variable. Age was reported according to five ranges in increments of ten years from 20 to 60+. Data for years of elementary teaching experience was entered from the information contained on the seniority list and its accuracy was confirmed by the responses on the questionnaire. Undergraduate major was coded into the database according to two groups. Group one included kinesiology, science, and biology since they were predicted to be most related to the dependent variable. All other undergraduate majors were treated as the control group in the analysis.

Teachers' interest in outdoor education and the perception of their expertise were measured by the responses to questions 1, 2, 3, 9, 10, 11, 12, and 14 of Part C of the

Outdoor Education Questionnaire. The four levels of the response scales were assigned the values zero, one, two, and three. This reflected the degree to which subjects agreed or disagreed with the statements. Unanswered questions were assigned a value of 1.5. This indicated neither agreement nor disagreement since the scale ranged from zero to three.

Teachers indicated the extent of both their current and their past personal involvement in outdoor activities (other than with students) by reporting the number of times per year they engaged in the activities listed in Part A of the Outdoor Education Questionnaire. The four levels of the response scale were assigned the values zero, one, two, and three. This reflected the level of involvement in the activities listed. If a subject indicated only the activities in which he/she was involved, missing values were treated as if he/she was not involved and zero was entered. By computing the sum of the values assigned to the response scale, a numerical score was generated and used for analysis.

Past student involvement used the same list and response scale as "current student involvement" but asked how many times in their career teachers involved students in the outdoor activities listed in Part B of the Outdoor Education Questionnaire. Scoring and treatment of missing values was handled the same as "current student involvement".

Past outdoor education teaching experience, was measured by the extent to which teachers had experience teaching or supervising outdoor education activities or programs in any capacity such as at school, summer camps, canoeing, skiing and so on. Scores of zero, one, and two were used to indicate no experience, involvement one to five times and involvement more than five times respectively.

Teachers' outdoor education teaching qualifications were measured by the extent to which they had formal training through the Ontario Teachers' Federation Outdoor Education Part I or Part II courses, they held an outdoor education specialist certificate or had received training through any other outdoor education teaching program. Responses were assigned the value zero for "none" and one, two, or three as qualifications increased. Other related qualifications were measured by yes or no responses to holding a current certificate in the following: standard first aid or better, CPR, swimming Bronze medallion or better, and canoeing. Subjects could indicate "other" qualifications by adding to the list and responding to them. These items were rated one for "yes" and zero for "no". The sum of all qualifications scores provided a numerical value for the qualifications variable.

CHAPTER V

RESULTS

Of the 203 surveys sent out, 121 were returned (nine were not completed). This represents 60% that were returned, and 55% suitable for analysis. Based on the returned and usable surveys, the statistical outcomes of this research are reported within the conceptual framework of the four models set forth: (a) school climate, (b) burnout, (c) personality type, and (d) personal background. All reported R^2 values were significant at the .05 level.

Dependent Variable

As a measure of "current student involvement in outdoor education activities", ratings on the four-point scale (0-3) for the 21 items in Part B of the questionnaire could yield a maximum score of 63 for each subject. Actual scores ranged from 0 to 23 with a mean of 4.7, and a standard deviation of 4.9. The frequencies of respondents' scores showed that a very high percentage of teachers never involved students in these activities during the school year (see Appendix H for the results of the Outdoor Education Questionnaire). The following is a list of the activities or subject areas in which students were involved outdoors more than five times during the school year, and the percentage of teachers who reported this involvement: physical education (16.4%), geography (11.9%), science (8.2%), nature walks on school property (7.3%), math (1.8%), technology (0.9%), nature

walks off school property (0.9%), field trips to provincial parks (0.9%), and field trips to natural settings with a guide (0.9%).

School Climate Model

Reported here are the results of the independent variables awareness, administrative support and legal liability. Frequency scores of the responses to questions 4, 5, 13, 15, 16, 17 18, 20 and 23 of the Outdoor Education Questionnaire (shown in Appendix H) indicated that the majority of respondents were aware of, and agreed that outdoor education was a useful teaching strategy that could be integrated with other subject areas, but few were aware of the Board's policy or documents on outdoor education. Teachers who felt they had the support of their administrators were also found to be more likely to involve students in outdoor education activities. The majority of respondents felt that their administrator would approve of, or at least would not discourage, outdoor education activities. Data generated from legal liability questions showed that over 85% of respondents indicated that they would worry about the legal ramifications of teaching outdoor education and almost 60% indicated that teachers who take students on outdoor excursions are at risk of being sued yet only 29% agreed that teachers should have extra insurance (see Appendix H).

The correlation coefficients reported in Table I,

indicate that significant positive relationships existed between the dependent variable and the following two factors within the school climate model: awareness and perceptions of administrative support.

Stepwise multiple regression analysis was computed by entering the three independent variables that pertain to teachers' interaction with the school system (i.e., awareness, administrative support, and legal liability). An R^2 value of .23 for awareness emerged on step number one of the multiple regression analysis. Administrative support emerged on step two and yielded an R^2 value of .25. Perceptions of legal liability was not found to be a statistically significant predictor of student involvement in outdoor education activities (see Table 1 for beta coefficients). This indicated that general awareness of outdoor education and perceptions of administrative support may be driving forces behind involving students in such activities.

Table 1

Summary of Stepwise Multiple Regression Analysis for School Climate Variables Predicting Current Student Involvement in Outdoor Education.

School climate variables	Beta
Variables in the equation	
Awareness	.43*
Administrative support	.17*
Variables not in the equation	
Legal liability perception	.03

*p < .05.

Burnout Model

Reported here are the results of the independent variables emotional exhaustion, depersonalization, and personal accomplishment. Results of frequency analysis tend to indicate that, in general, the teachers who completed and returned this inventory did not show high levels of burnout. Although 34% of the respondents scored high on the emotional exhaustion scale of burnout, the other two scales indicated that only 21% and 14% scored high on these burnout scales. Table 2 reports the percentages of respondents whose scores fall in each category for the three subscales of the MBI.

Of the three subscales by which burnout is measured (emotional exhaustion, depersonalization and personal accomplishment), a statistically significant relationship was noted for personal accomplishment. The correlation coefficients shown in Table I, indicate that a significant positive relationship existed between current student involvement in outdoor education activities and the personal accomplishment subscale of MBI.

Stepwise multiple regression analysis was computed after entering the three MBI subscales as independent variables. An R^2 value of .07 emerged for personal accomplishment on step number one of the multiple regression analysis. This indicated that a low degree of burnout on the personal accomplishment subscale may predict a teacher's likelihood of involving students in outdoor education

activities. Emotional exhaustion and depersonalization were not found to be significant predictors at the .05 level (see Table 3 for beta coefficients).

Table 2

Scores showing Percentage of Respondents for each Level of Burnout for each Subscale of the MBI.

Level of Burnout	Emotional Exhaustion	Depersonalization	Personal Accomplishment
High	33.6	21.5	14.0
Moderate	29.9	27.1	15.9
Low	36.4	51.4	70.1
n = 107			

Table 3

Summary of Stepwise Multiple Regression Analysis for Burnout Variables Predicting Current Student Involvement in Outdoor Education.

MBI Subscales	Beta
Variables in the equation	
Personal Accomplishment	.26*
Variables not in the equation	
Emotional exhaustion	.06
Depersonalization	-.04

*p < .05.

Personality Type Model

Reported here are the results of the independent variables of the personality scales; realistic, investigative, artistic, social, enterprising, conventional, self-control, masculinity-femininity, status, infrequency, acquiescence.

Correlation analysis indicated that teachers who scored high on the investigative scale were reported to show a significant positive relationship with current student involvement in outdoor education (see Table I₁).

Stepwise multiple regression analysis was computed using z-scores of Holland's 11 personality types as independent variables and current student involvement as the dependent variable. An R^2 value of .07 emerged for investigative personality type on step number one of the multiple regression analysis. This indicated that a person with an investigative personality type, as defined by Holland, may be more inclined to involve one's students in outdoor education activities. No other personality types were found to be significant predictors at the .05 level (see Table 4 for beta coefficients).

Table 4

Summary of Stepwise Multiple Regression Analysis for
Personality Type Variables Predicting Current Student
Involvement in Outdoor Education.

Personality Type variables	Beta
Variables in the equation	
Investigative	.26*
Variables not in the equation	
Realistic	.003
Artistic	.01
Social	-.12
Enterprising	-.14
Conventional	-.14
Self-control	-.09
Masculinity-femininity	-.05
Status	-.05
Infrequency	.04
Acquiescence	-.02

*p < .05.

Personal Background Model

Reported here are the results of the ten independent variables related to subjects' personal background (i.e., age, gender, years of elementary teaching experience, undergraduate major, interest and expertise in outdoor education, past personal involvement, current personal involvement, past student involvement, past outdoor education teaching experience, qualifications).

Frequency data regarding the demographic variables showed that less than 20% of respondents were under 40 years old, 57% were between 40 and 49, and 15% were over 50 years old. The average years of teaching experience was 18.3 and ranged from 0 to 35. Undergraduate major statistics showed that 50% of the respondents did not answer this section. Of the subjects that did indicate their undergraduate major, 6.3% graduated from either kinesiology, science or biology. Frequency scores also revealed that the majority of teachers showed interest in the outdoors but did not feel they had the expertise to teach outdoor education. More than 54% of the respondents reported having no prior experience teaching or instructing outdoor education activities, whether at school, at a summer camp, or in any other capacity.

Current personal involvement scores were generated by calculating the sum of the ratings on the four-point scale (0-3) for the 12 items in Part A of the questionnaire. This could yield a maximum score of 36 for each subject. Actual

scores ranged from 0 to 19 with a mean of 5.3, and a standard deviation of 4.4.

Almost 90% of respondents reported having no formal teaching qualifications in the area of outdoor education. Some did however, report having swimming, canoeing, first aid or CPR qualifications. There were a few (5.5%) that reported having related training from other sources such as the army, or a Faculty of Education, an Educators course at Bark Lake, sailing, or SCUBA diving or through participation in programs such as Focus on Forests, Fishways, Project Wild.

The correlation coefficients shown in Table I, indicate that significant positive relationships existed between current student involvement in outdoor education activities and the following personal background factors: interest and expertise, past outdoor education teaching experience, past personal involvement, current personal involvement, and past student involvement. Weak positive correlations emerged for qualifications, and gender. Weak negative correlations emerged for age, undergraduate major, and years of teaching experience when compared with the dependent variable current student involvement. These variables, however, were not statistically significant at the .01 level.

Stepwise multiple regression analysis was computed using all ten variables listed above as the independent variables. An R^2 value of .27 emerged for past outdoor

education teaching experience on step number one of the multiple regression analysis. Current personal involvement emerged on step two and yielded an R^2 value of .38, and on step three past student involvement emerged with an R^2 value of .44 (see Tables 5 for beta coefficients). This indicated that having taught outdoor education in the past in any capacity, being involved in outdoor activities in leisure time and having involved students in outdoor activities in the past may drive current involvement of one's students in outdoor activities.

Table 5

Summary of Stepwise Multiple Regression Analysis for
Personal Background Variables Predicting Current Student
Involvement in Outdoor Education.

Personal Background variables	Beta
Variables in the equation	
Past outdoor education teaching	.32*
Current personal involvement	.33*
Past student involvement	.25*
Variables not in the equation	
Interest & Expertise	.22
Undergraduate major	-.05
Qualifications	.07
Age	-.08
Years of elementary teaching	-.17
Gender	.12

*p < .05.

Summary

The factors motivating people to choose certain activities and to avoid others are unique to each individual. From the results reported here, generalities may provide an indicator of the types of individuals who are attracted by outdoor activities and more likely to involve students in them. Certain factors were found to be correlated with the extent to which students were involved in outdoor activities in schools. Some factors were computed to have predictive influences on this involvement. These factors, along with the factors that were not found to be related to the dependent variable will be discussed according to the predictions that were made previously. Logical explanations and intuitive interpretations of these results will be offered.

CHAPTER VI

DISCUSSION

Scores for the dependent variable, which was a measure of student involvement in outdoor education activities, were very low (a mean of 4.7 out of a possible 63). This indicates a general trend of teachers not taking advantage of the outdoors to teach lessons or to integrate curriculum. The possible reasons for this will be discussed according to the four models that have served as the basis for investigating the research question "What hinders the implementation of outdoor education activities in schools?"

School Climate Model

Two factors within the school climate model that were found to be associated with student involvement in outdoor education activities were awareness and perceptions of administrative support.

Prediction one: Awareness

Significant results of the correlation and regression analyses support the prediction that teachers who are more aware of: (a) the potential benefits of outdoor education programs; (b) the availability of resources, curriculum guidelines; and (c) the types of activities that constitute outdoor education in other subject areas will be more likely to involve students in outdoor education activities.

Comments made by subjects give further evidence of the high level of awareness and positive attitudes demonstrated

by some of the respondents. Examples include "I have found children to be intrinsically motivated when involved in outdoor education. The quality of learning is superior to the class experience" and "I feel outdoor education is a great way to teach many subject areas. Students love it." (Appendix J reports the comments made by respondents.)

This finding seems quite logical. Teachers who are involved in outdoor education would naturally be more aware of outdoor education methods and teachers who are more aware would be more inclined to be involved. One can enter such a cycle at either point. Increasing awareness can be targeted or getting more teachers involved may be a starting point to promoting outdoor education. It is the opinion of this researcher that once this cycle has begun it will perpetuate itself and lead to a more extensive outdoor education program.

Prediction two: Administrative support

Correlation analysis indicated that teachers who perceive that they had the support of their administrators were more likely to involve students in outdoor education activities. Administrative support also generated a significant regression value which further supports the predictability of this variable affecting student involvement in outdoor education activities.

Perceptions of administrative support may be affected by the professional and social relationship between the

teacher and the administrator, and by the similarities or differences in their personalities, opinions and teaching styles. It is hoped that administrators would support and encourage teachers to take advantage of all available resources and professional development to help provide a wide range of educational experiences for students. This is consistent with the findings of Butler and Mergardt (1994) that supportive administrators trusted teachers, encouraged professional growth, became involved in their programs and stood behind teachers in advocating the program and justifying funding. One respondent summed up this issue very clearly by stating "I think it all comes down to what the administration at the school allows you to do and how they make you feel about using the outdoors."

Prediction three: Legal liability

Legal liability did not manifest itself as a statistically significant factor in the analysis. This may have been affected by the few number of items in the questionnaire dealing with this issue. Frequency data did however show that most respondents agreed that the risk of litigation is real, but felt that extra insurance was not needed. This apprehension was expressed by one respondent as follows: "In this age of the fear of lawsuits, I'm not too keen on taking a class of 30 intermediate students into the outdoors unless there were a structured and supervised program available which was age appropriate."

It was indicated in the literature that a successful lawsuit would be based primarily on proof of negligence, yet this researcher feels that even if found not guilty, the allegation itself and the process of following legal channels to prove one's innocence sometimes takes years to sort out and does irreparable damage to a teacher's career. Consequently, many teachers may simply avoid programs such as outdoor education in the first place. As one teacher commented "I enjoy the outdoors but don't always enjoy sharing it with students. The responsibility scares me."

In some cases, however, fear of litigation may encourage teachers to develop a highly credible, safe, and well-planned program of activities. If the teacher adheres to the guidelines and policies of the Board in terms of appropriate activities and required qualifications, and if he/she uses good judgement, legal concerns will not be strong enough to warrant avoidance of outdoor activities.

Burnout Model

Prediction four: Burnout

It was not surprising to find that teachers who returned the survey did not report high levels of burnout. As for the others, one can only speculate if burnout was the reason for them not returning it. Although emotional exhaustion and depersonalization were not found to be statistically significant factors in the analysis, it may be logical to surmise that teachers who were emotionally

exhausted may not have completed or returned the survey. Also, teachers who may have depersonalized their students would not feel comfortable reporting this on a written survey.

Personal accomplishment refers to one's feelings of competence and successful achievement in one's work with people. Specifically for teachers, success is generally seen as helping students to learn and grow. Analyses indicate that teachers who feel they have been a positive influence on students' lives would be more likely to involve students in outdoor education activities. The converse may also be true, that seeing students enjoy participating in outdoor education activities enhances feelings of personal accomplishment. Either way, the results would be very positive for the students.

Personality Type Model

Prediction five: Personality type

Results indicate that teachers who show an affinity for involving students in outdoor activities tend to score high on the investigative personality scale. The personal preferences and behaviours associated with this personality type have logical connections to outdoor education activities. It is the experience of this researcher that individuals known to engage in activities related to outdoor education tend to display the following traits: (a) They enjoy investigating biological and physical phenomena such

as stars, trees, waterfalls, and plant and animal life. (b) They are curious and analytical. They often are intrigued by things such as an animal they have not seen before and seek to find out what it is, where it lives, and how it interacts with its surroundings. (c) They may appear introverted. That is, they can be quite content being by themselves enjoying the peaceful solitude of a natural setting. (d) They have mathematical and scientific abilities. These are sometimes necessary for navigation or survival. For example, they are often proficient in skills such as orienteering, telling time and direction by shadows, and identifying poisonous and edible plants. These qualities of a typical outdoors-person parallel the traits of a person identified by the VPI as having an investigative personality.

It is interesting to note that realistic personality type was not a predictor as was originally anticipated. This shows that outdoor education does not necessarily attract people who are athletic and enjoy physical occupations. This may help to dispel the stereotype that outdoor education is for active, athletic individuals. It is far broader than originally thought.

Personal Background Model

Prediction six, seven, and eight: Age, years of teaching experience, and undergraduate major

It is intriguing to note that neither age, years of teaching experience nor undergraduate major were found to be

statistically significant factors in predicting the likelihood of involving students in outdoor education activities. The predictions regarding these factors may have been affected by stereotypes and the past experiences of the researcher. It is now the contention of this researcher that outdoor education can be used by teachers of any age, experience or subject area. This makes perfect sense because outdoor education is not necessarily physical activity and can be a welcomed change from the classroom for teachers and their students. Outdoor education is the vehicle by which content is introduced and presented, therefore can be used by teachers in any specialty subject area. For example teachers who majored in history or art can take students outdoors and research or sketch ancient buildings or cemetery headstones. Math teachers can teach ratios by examining sizes of objects and their shadows. Teachers specializing in English can have students write poetry about what they see in a garden or the school yard. Teachers who majored in french can hold conversation classes outdoors or have as scavenger hunt to increase students' vocabulary. And finally, science and environmental studies specialists have a world of resources to study ecosystems, and the impact of humans on the environment.

Prediction nine: Interest and expertise

It is interesting that correlation analysis generated a statistically significant positive correlation between the

dependent variable and the measure of interest and expertise, yet regression analysis did not show it to be a predictive factor. The logical assumption that teachers interested in outdoor education would have completed and returned the survey leads one to speculate that there should have been a stronger relationship. A possible explanation for this may be that one's interest may be different than the perception of one's expertise or their ability to teach outdoor education. For example, a teacher may be interested in outdoor activities but may not feel confident in taking students outdoors and maintaining a comfortable level of class control. A future study may benefit from testing these variables individually. Also, the number of variables listed in the regression analysis may have affected this outcome. As the number of variables increases in regression analysis the distribution of the variance of the dependent variable is altered.

Prediction ten: Personal involvement

Personal involvement is undoubtedly a reflection of one's interest and contributes to one's expertise so it is puzzling why current personal involvement scores emerged as a statistically significant factor on the regression analysis and interest and expertise did not. This raises an interesting point. Were these people first involved in various outdoor activities, then chose teaching as a career; or were they teachers first who chose to involve their

students in outdoor education activities? One may only speculate where this involvement began for these current teachers, but for future generations of students who may become teachers, if exposure and positive experiences are presented early in one's life, the possibility of perpetuating outdoor education in schools is optimistic.

Prediction eleven: Outdoor education teaching experience

Generally, having successfully taught something increases one's confidence and competence. For this reason it is not surprising that the prediction was supported that having past teaching experience in outdoor education would be positively related to currently involving students in such activities. It is interesting to note though, that this was the strongest predictor within the personal background model. Closely associated with this was the past student involvement variable, which also was a significant factor. From this, one may suspect that if a teacher can be encouraged to become involved in outdoor education, he/she will continue this involvement.

Prediction twelve: Qualifications

Since so few respondents held any related qualifications, a pattern of any relationship was not indicated by the analyses. This lack of qualified people is cause for concern and leads to questions as to why this is so.

Other Issues that Emerged from this Research

Funding was mentioned as a peripheral issue in the school climate model and was not directly investigated in this study. Comments from respondents did mention concerns of lack of funding for school programs in general and more specifically that outdoor education "will be cut dramatically with cutbacks in funding". Other comments mentioned funding, money, and lack of equipment as limiting factors to implementing outdoor education programs.

CHAPTER VII

CONCLUSIONS

A. Summary

The main purpose of this study was to investigate the extent to which teachers of Kent County elementary schools involve students in outdoor education activities, and to determine the factors that influence this involvement. Results indicate that teachers, in general, involve students in few outdoor education activities, if any.

Analysis of the results of the four models may allow one to speculate as to the profile of the type of teacher who is more likely to involve students in outdoor education. This teacher perceives him/herself to be one who: (a) is aware of how outdoor education can be implemented in schools (scores high on awareness scale of school climate); (b) believes that administrators support outdoor education (school climate); (c) generally accomplishes goals and feels successful in one's job (high personal accomplishment on MBI); (d) has an investigative, curious and intellectual personality (high investigative score on VPI); (e) has taught outdoor education in the past (past experience in personal background model), and (f) is involved in outdoor activities during personal time (current personal involvement in personal background model).

The results of this study may be used to promote an awareness of outdoor education as a valuable teaching method

to help students to achieve educational outcomes. Heightened awareness may be the first step toward the acceptance of an outdoor education program as an advantageous part of the curriculum. This acceptance may, in turn, initiate the approval and promotion of these long overdue programs. The benefits will be realized by students involved in future outdoor education programs. Consequently, outdoor education should be introduced into the school curriculum in the early years and continue to be offered throughout every grade level of the school system. Participants will then benefit from the healthy habits and positive attitudes that these activities can promote. With these arguments in mind, one could make a strong case for encouraging the implementation of outdoor education into the regular school curriculum.

It must also be recognized that outdoor education may not be of interest to some people. Teaching methodologies should not be forced on people who do not feel comfortable in these areas, yet the option should be available.

B. Recommendations to Educators

As a basis for long term development and significant change in curriculum, the results and conclusions of this study indicate that the Kent County Board of Education might be advised to: (a) examine how outdoor education can meet many of the learning outcomes stated in the Common Curriculum; (b) update the 1974 policies and guidelines for the administration of outdoor education programs; (c)

increase the awareness of outdoor education as a practical, and viable teaching methodology through workshops during professional activity days; (d) research and promote the use of various outdoor education resources and locations available to teachers for field trips, day trips and extended excursions; (e) promote the opportunity for teachers to join their classes with experienced teachers on outdoor education activities and field trips to increase the involvement, experience and expertise of more teachers; (f) allow teachers the flexibility afforded them by The Common Curriculum to present content from all subject areas using outdoor education methodologies; (g) allocate sufficient funds to outdoor education programs for the purchase of equipment, training of teachers and management of programs; (h) consider selecting for the position of outdoor education coordinator, a person who has awareness, training, qualifications and experience teaching outdoor education. This person should be one who is not burned out, has an investigative personality, and is very involved in various outdoor pursuits in leisure time.

C. Recommendations for Future Research

This study was an exploratory, cross-sectional survey of Kent County Elementary school teachers. The following ideas for future research may further advance this field of knowledge: (a) perform longitudinal studies on those teachers who are involved in, or dropped out of, outdoor

education activities with students to investigate the effects on those teachers (e.g., burnout scores, liability issues), (b) focus on students whose teachers involve them in outdoor education activities to investigate the effectiveness of this methodology in meeting educational outcomes, (c) compare these findings to the trends of outdoor education in secondary schools.

If replication of this survey were to be done the following suggestions are offered: (a) follow up on unreturned surveys to determine the reason that it was not completed and returned, (b) add more questions dealing with the liability issue, (c) separate interest and expertise as personal background factors, (d) condense certain items to reduce the administration time of the survey.

REFERENCES

- Anderson, W. G. (Ed.). (1994). Building and maintaining outstanding physical education programs: Key factors. Journal of Physical Education Recreation and Dance, 65(7), 22-49.
- Anglin, J., Cartwheel, G., Dawson, R., Hoen, B., Hogg, E., Lowes, B., Palm, J., Miranda, B. L., Metcalf, J., Trussler, T., & Walter, D. (1979). Report of the working group proposing standards and guidelines for outdoor/wilderness programming. Ontario: Ministry of Community and Social Services: Children's Services Division.
- Anglin, J., Cartwheel, G., Dawson, R., Hoen, B., Hogg, E., Lowes, B., Palm, J., Miranda, B. L., Metcalf, J., Trussler, T., & Walter, D. (1980). The outdoor /wilderness programs handbook. Ontario: Ministry of Community and Social Services: Children's Services Division.
- Babcock, W. J., Bidal, R., Duquemin, C., Fraser, L., Johnson, B., Van Den Hoek, H. J., & Whyte, B. (1971). Outdoor education manual: Part II. Ontario Teachers' Federation.
- Babcock, W. J., Bidal, R., Duquemin, C., Fraser, L., Van Den Hoek, H. J., Johnson, B., & Archer, B. (1970). Outdoor education manual: Part I. Ontario Teachers' Federation.
- Balkwill, T. L. (1995). Outdoor education in Ontario schools. Unpublished manuscript, University of Windsor, Windsor, ON.
- Bowyer, J. (1990). Practical solutions to problems in outdoor education. Crucible, 21(5), 37-38.
- Butler, L. F., & Mergardt, G. C. (1994). The many forms of administrative support. Journal of Physical Education Recreation and Dance, 65(7), 43-47.
- Byrne, B. M. (1991). The Maslach Burnout Inventory: Validating factorial structure and invariance across intermediate, secondary, and university educators. Multivariate Behavioral Research, 21(4), 583-605.
- Byrne, B. M. (1994). Testing for the factorial validity, replication, and invariance of a measuring instrument: A paradigmatic application based on the Maslach Burnout Inventory. Multivariate Behavioral Research, 29(3), 289-311.

- Capel, S. A. (1991). A longitudinal study of burnout in teachers. British Journal of Educational Psychology, 61, 36-45.
- The common curriculum: Policies and outcomes, grades 1-9. (1995). Ontario Ministry of Education and Training: Queen's Printer for Ontario.
- Gay, D. A., & Ross, J. R. (1994). Supportive relationships. Journal of Physical Education Recreation and Dance, 65(7), 27-30.
- Gold, Y. (1984). The factorial validity of the Maslach Burnout Inventory in a sample of California elementary and junior high school classroom teachers. Educational and Psychological Measurement, 44(4), 1009-1016.
- Hanna, G. (1986). Legal liability in outdoor education/recreation. Unpublished master's of arts thesis.
- Holland, J. L. (1973). Making vocational choices: A theory of careers. Englewood Cliffs, NJ: Prentice-Hall.
- Iwanicki, E. F., & Schwab, R. L. (1981). A cross validation study of the Maslach Burnout Inventory. Educational and Psychological Measurement, 41(4), 1167-1174.
- Kimiecik, S. J., Demas, K. R., & Demas, C. B., (1994). Establishing credibility: Proactive approaches. Journal of Physical Education Recreation and Dance, 65(7), 38-42.
- Knapp, C. E. (1989). Humanizing Outdoor education: Exploring the affective domain. Journal of Physical Education, Recreation and Dance, 60(2), 40-43.
- Lee, R. T., & Ashford, B. E. (1990). On the meaning of Maslach's three dimensions of burnout. Journal of Applied Psychology, 75(6), 743-747.
- Manual of procedures and criteria for outdoor education programs. (1993). The Muskoka Board of Education.
- Mathematics outdoor style. Tanser and Churchill environmental studies. (1972). Unpublished manuscript, Kent County Board of Education.
- McGregor, I. (1992). Legal liability and risk management. Paper presented at the Ontario Physical and Health Education Association regional conference, Toronto, ON.

- Morton, L. L., Diubaldo, D., & Awender, M. A. (in press). Vocation related characteristics of Ontario university students on the teaching career path. Guidance and Counselling.
- Noisy River Environmental Education Centre: Residential program teacher's handbook. (Rev. ed.). (1987). The Board of Education for the City of Etobicoke.
- Be outdoorable. (1984). The Metropolitan Toronto School Board.
- Pepper, J.G. (1974). Field trips and outdoor education. Kent County Board of Education.
- Petersen, S. C., Allen, V. L., & Minotti, V. L. (1994). Teacher knowledge and reflection. Journal of Physical Education Recreation and Dance, 65(7), 31-37.
- Powers, S., & Gose, K. F. (1986). Reliability and construct validity of the Maslach Burnout Inventory in a sample of university students. Educational and Psychological Measurement, 46(1), 251-255.
- Priest, S. (1986). Redefining outdoor education: A matter of many relationships. Journal of Environmental Education, 17(3), 13-15.
- Provincial Sport Organizations risk management manual. (1987). Ontario: Ministry of Tourism and Recreation: Sport and Fitness Ontario.
- Schaufeli, W. B., Maslach, C., & Marek, T. (Eds.). (1993). Professional burnout: Recent developments in theory and research. Washington, DC: Taylor & Francis
- Staley, F. A. (Ed.). (1983). Outdoor education in the total curriculum. Journal of Physical Education, Recreation and Dance, 54(1), 55.
- Starnaman, S. M., & Miller, K. I. (1992). A test of a causal model of communication and burnout in the teaching profession. Communication Education, 41(1), 41-53.
- Smissen, B. van der. (1994). Risk management: Beyond safety checklists. Paper presented at the Professional Development Seminar, Wayne State University, MI.
- Walkey, F. H., & Green, D. E. (1992). An exhaustive examination of the replicable factor structure of the Maslach Burnout Inventory. Educational and Psychological Measurement, 52(2), 309-323.

Williams, L. (Ed.). (1992). Canoeing safety resource manual.
Willowdale, ON: Canoe Ontario.

APPENDIX A

Physical Education Program Inventory

Program Inventory

Check the enabling factors that apply in your district/school.

1. Teacher Relationships

Do the physical education teachers...

- ☐ informally consult with colleagues about the program regularly?
- ☐ collaborate on particular program development projects?
- ☐ help plan and attend regular staff meetings devoted to program concerns?
- ☐ think of themselves as part of a team?
- ☐ socialize in school, and on special occasions, outside of school?
- ☐ observe each others' classes to learn and/or to give help?
- ☐ regularly collaborate on planning programs, schedules, and special events?

2. Teacher Knowledge and Reflection

Do the physical education teachers...

- ☐ focus on student learning as their central goal in program planning and teaching?
- ☐ use students' achievement of outcomes as the basis for assessing and revising learning progressions?
- ☐ adjust teaching strategies to accommodate individual student learning capabilities?
- ☐ monitor class events to determine their place within the larger programmatic picture?
- ☐ resolve or ameliorate difficult problems embedded in the teaching-learning setting?
- ☐ habitually employ the plan-teach-think cycle?
- ☐ continually seek new information about teaching?

3. Establishing Program Credibility

Do the physical education teachers...

- ☐ take responsibility for establishing their program's credibility?
- ☐ initiate activities designed to secure support for their program?
- ☐ keep up-to-date on professional issues and stay active in professional organizations?
- ☐ inform school administrators about the teachers' professional involvement and its effect on the program?
- ☐ regularly serve on various school and district committees?
- ☐ participate in community service programs?
- ☐ make frequent presentations about the program to school and community groups?
- ☐ use visual and verbal communications to promote program activities?
- ☐ get parents to observe and participate in the program?

4. Administrative Support

Do the principals...

- ☐ know what the physical education program is all about?
- ☐ believe that the physical education teachers have earned their respect?

Do the principals and physical education directors...

- ☐ trust the teachers to build their own programs?
- ☐ encourage participation in professional development activities?
- ☐ become directly involved in planning and executing program initiatives?
- ☐ support teachers when important policy issues are raised?
- ☐ keep teachers informed on matters that are vital to teachers' interests?
- ☐ secure the funds and other resources to run a good program?
- ☐ collaborate with teachers to solve everyday problems?

Other enabling factors: _____

APPENDIX B

Statements in The Common Curriculum Alluding to Outdoor Education

Included here are statements from the Common Curriculum that refer to outdoor education. These may be statements of mandated learning outcomes or as suggested ways to meet learning outcomes.

Outdoor Education and the Essential Learning Outcomes.

- a) use appropriate ideas, models, and theories to investigate and describe the natural world.
- b) evaluate the interdependence of local, national, and global communities and their dependence on the environment.
- c) demonstrate concern and care for the environment.
- d) describe aesthetic qualities in natural objects
- e) describe and evaluate their feelings and thoughts about the natural world.

Outdoor Education and the Specific Learning Outcomes.

ARTS

Mandated outcomes:

- a) identify aspects of natural materials that appeal to the senses;
- b) use art to explore environmental issues, express their thoughts on environmental issues and explore environmental concerns;

Suggested means of achieving learning outcomes:

- a) identify the rhythms of nature, sounds in the forest, and movement of animals;
- b) use drawing skills in the study of plant and animal forms;
- c) identify conflicts in the animal world;
- d) use natural materials to create art works;
- e) create or perform works that display such expressions as the grace of a deer;
- f) identify artistic form, line, shape and colour in animals, plants and landforms.

LANGUAGE

Although there was no specific mention of Outdoor Education activities in this area, it was expressed that "Language and communication skills must be a focus in all areas of the curriculum" (Common Curriculum, p. 50).

MATHEMATICS, SCIENCE AND TECHNOLOGY

Mandated outcomes:

- a) investigate and explain the relationships among patterns in mathematics and natural environments;
- b) identify living things, sort and classify them and describe their properties and function in natural environments;
- c) use tools and materials to investigate and explain natural phenomena;
- d) describe environmental cause-and-effect relationships and suggest solutions to environmental problems;
- e) investigate the features of plants and animals that help them to survive in their surroundings;
- f) identify and compare local natural habitats;
- g) describe the features and function of their local bioregion;
- h) analyze ways in which human and natural systems are connected;
- i) describe the effect of people's actions on plants and animals;
- j) assess environmental problems and implement an action plan to deal with them;

Suggested means of achieving learning outcomes:

- a) make and read maps of the community;
- b) classify living things by their covering, movement, protective devices, or features of adaptation to their habitat;
- c) use magnifiers to see small things and investigate cells;
- d) make charts, write descriptions and draw pictures showing the similarities and differences among animals and plants;
- e) use magnifiers and microscopes to investigate pond water or body parts of insects and compare plant and animal cells;
- f) analyze the interrelationship of plants in the environment;
- g) investigate plants and animals as sources of various products;
- h) explain the impact of the demand for wood on sensitive habitats;
- i) predict changes due to exposure to the elements;
- j) predict the effects of habitat restoration;
- k) describe the cycling of nutrients in nature, migration and hibernation patterns, and the growth rings on a tree;
- l) investigate the webbed feet of frogs, and the feathers of birds;
- m) identify a species' adaptations, such as protective colouring and body covering;
- n) describe the impact of pesticides and fertilizers on food chains;

- o) observe the effect of flood-control systems;
- p) practise questioning skills such as "How many leaves are there on a plant?";
- q) experiment with the germination of seeds;
- r) use math skills to investigate a stream;
- s) put up bird houses as an example of how humans can have positive effects on animals;
- t) address environmental issues by planting trees, or restoring a stream or woodlot.

PERSONAL AND SOCIAL STUDIES:SELF AND SOCIETY

Mandated outcomes:

- a) describe personal experiences of nature;
- b) describe the pleasure they experience when visiting natural areas;
- c) engage in recreational activities in natural environments.

Suggested means of achieving learning outcomes:

- a) participate in outdoor activities as daily physical exercise;
- b) evaluate environmental regulations and advocate the preservation of a local wetland;
- c) undertake habitat restoration as a school project;
- d) look for signs of spring;
- e) experience delight in observing living things;
- f) analyze the influence of waterways on recreational activities.

APPENDIX C

Litigations Against School Boards

Tyler v. Board of Ardath (1935) - The school board was found vicariously liable for a bus accident caused by the negligent operation of its driver.

Mackay v. Govan School Unit No. 29 of Saskatchewan (1968) - The school was found negligent in not providing a qualified instructor and the teacher was found negligent in failing to provide adequate instruction when a sixteen-year-old boy fell from parallel bars while performing a gymnastics routine and broke his back. The plaintiff was awarded \$183 000.

Thornton v. Board of School Trustees (Prince George, British Columbia) (1976) - A fifteen-year-old boy broke his neck when he vaulted over his protective landing mats. The teacher was found negligent in failing to provide adequate instruction and supervision. Thornton received \$1 534 059.

Boese v. Board of Education of St. Paul's Roman Catholic Separate School District No. 20 (Saskatoon) (1976) - The instructor was found negligent when an obese thirteen-year-old boy fractured his leg when he jumped from a seven-foot platform in a required physical education activity.

Piszel v. Board of Education of Etobicoke (1977) - The school board was found liable for an injury to a wrestling student when the mats separated and the student injured his elbow on the hard floor below.

Meyers v. Peel County Board of Education (1981) - The teacher and the school board were found liable for failing to properly supervise a fifteen-year-old gymnastics student and to provide adequate protective matting when a fall from gymnastics rings resulted in injuries causing quadriplegia. Meyers was found 20% contributorily negligent¹.

¹Contributory negligence - when the injured person does some act which enhances the likelihood of injury; for example, disobeys the directions of the person in charge (van der Smissen, 1994).

Smith v. Horizon Aerosports Ltd. et al. (1981) - The sport parachuting school was found negligent due to inadequate instruction when a jumper failed to safely steer her parachute to the ground. She landed in a tree, then fell to the ground leaving her a paraplegic.

Delaney et al. v. Cascade River Holidays Ltd. et al. (1982) - A white water rafting company was found negligent for not providing life jackets with appropriate buoyancy specifications (31 lbs.) for a specific trip (jackets with 21 lbs. were worn). No award was recovered due to a clause included in the disclaimer.

Lowry et al. v. Canadian Mountain Holidays Ltd. et al. (1985) - A ski instructor and Canadian Mountain Holidays Ltd. were deemed negligent when an avalanche fatally injured two skiers. Families were awarded \$200 000 and \$500 000.

Source: Hanna, 1986.

APPENDIX D

Outdoor Education Questionnaire

OUTDOOR EDUCATION QUESTIONNAIRE

Thank you again for your participation. Your answers are very important to me, so please find a comfortable location, take your time and answer as accurately as possible.

PART A - BACKGROUND INFORMATION

<u>Gender</u>	Male	Female
----------------------	-------------	---------------

Undergraduate Major

Age

Experience Teaching ELEMENTARY School

_____ 20-29 years
 _____ 30-39 years
 _____ 40-49 years
 _____ 50-59 years
 _____ 60 years or over

_____ 1 - 3 years
_____ 4 - 7 years
_____ 8 -11 years
_____ 12-15 years
_____ 16-18 years
_____ 19 or more years

Present Teaching Assignment

Homeroom Subjects

_____ none	_____ Junior Kindergarten	_____ Kindergarten
_____ Grade 1	_____ Grade 6	_____ Grade 3/4
_____ Grade 2	_____ Grade 7	_____ Grade 4/5
_____ Grade 3	_____ Grade 8	_____ Grade 5/6
_____ Grade 4	_____ Grade 1/2	_____ Grade 6/7
_____ Grade 5	_____ Grade 2/3	_____ Grade 7/8
_____ Behaviour Modification		
_____ Other		

Rotary Subjects

_____ none	_____ Library	_____ French
_____ Art	_____ Health	_____ Physical Education
_____ Music		_____ Learning Resource Centre
_____ other		

Experience Teaching or Supervising Outdoor Education Activities

Please indicate your experience in teaching or supervising outdoor education activities or programs in any capacity.
(school, summer camps, canoeing, skiing ...)

```

_____ none
_____ assistant instructor/supervisor on one to five occasions
_____ assistant instructor/supervisor on more than five occasions
_____ head instructor/supervisor on one to five occasions
_____ head instructor/supervisor on more than five occasions
_____ full time outdoor education teacher
_____ other

```

Qualifications in Outdoor Education

Please indicate your qualifications for teaching outdoor education.

- _____ none
_____ Outdoor Education Part I
 (Ontario Teachers' Federation course)
_____ Outdoor Education Part II
 (Ontario Teachers' Federation course)
_____ qualified outdoor education specialist
_____ other _____

Other Related Qualifications

Please indicate the related qualifications for which you hold a
CURRENT certificate.

- _____ none
_____ Standard first aid or better
_____ CPR basic rescuer or better
_____ Swimming - Bronze medallion or better
_____ Canoeing - Level _____
_____ other _____ , _____ , _____

Personal Involvement in Outdoor Activities

Use the scale provided to indicate your personal involvement in
the following activities (other than with students) for the
current year AND for previous years for each item.
Please place a check mark on a line

	<u>TIMES DURING THIS YEAR</u>				<u>TIMES IN</u>			
	<u>(Mar. 95 - Mar. 96)</u>				<u>PREVIOUS YEARS</u>			
	0	1-5	6-10	>10	0	1-5	6-10	>10
Camping (at a campground)	_____	_____	_____	_____	_____	_____	_____	_____
Wilderness camping	_____	_____	_____	_____	_____	_____	_____	_____
Canoeing or kayaking	_____	_____	_____	_____	_____	_____	_____	_____
Hiking or birdwatching	_____	_____	_____	_____	_____	_____	_____	_____
Fishing or ice fishing	_____	_____	_____	_____	_____	_____	_____	_____
Boating or sailing	_____	_____	_____	_____	_____	_____	_____	_____
Skiing or snowshoeing	_____	_____	_____	_____	_____	_____	_____	_____
Golf or tennis	_____	_____	_____	_____	_____	_____	_____	_____
Other outdoor activities	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

PART B - OUTDOOR EDUCATION ACTIVITIES INVOLVING STUDENTS

Use the scale provided to indicate how much you involve, and have involved, your students in the following activities.

Use one check for current year AND one check for previous years for each item.

Please place a check mark on a line

	<u>TIMES DURING THIS</u> <u>SCHOOL YEAR</u>					<u>TIMES IN CAREER</u> <u>- ALL PREVIOUS YEARS</u>			
	0	1-5	6-10	>10		0	1-5	6-10	>10
Nature walks on school property	_____	_____	_____	_____		_____	_____	_____	_____
Nature walks off school property	_____	_____	_____	_____		_____	_____	_____	_____
Camping	_____	_____	_____	_____		_____	_____	_____	_____
Canoeing	_____	_____	_____	_____		_____	_____	_____	_____
Kayaking	_____	_____	_____	_____		_____	_____	_____	_____
Cross-country skiing on school property	_____	_____	_____	_____		_____	_____	_____	_____
Cross-country skiing off school property	_____	_____	_____	_____		_____	_____	_____	_____
Orienteering on school property	_____	_____	_____	_____		_____	_____	_____	_____
Orienteering off school property	_____	_____	_____	_____		_____	_____	_____	_____
Field trips to natural settings with a guide	_____	_____	_____	_____		_____	_____	_____	_____
Field trips to natural settings without a guide	_____	_____	_____	_____		_____	_____	_____	_____
Field trips to Provincial parks	_____	_____	_____	_____		_____	_____	_____	_____
Science lessons outdoors	_____	_____	_____	_____		_____	_____	_____	_____
Math lessons outdoors	_____	_____	_____	_____		_____	_____	_____	_____

	<u>TIMES DURING THIS</u> <u>SCHOOL YEAR</u>					<u>TIMES IN CAREER</u> <u>- ALL PREVIOUS YEARS</u>			
	0	1-5	6-10	>10		0	1-5	6-10	>10
Technology lessons outdoors	_____	_____	_____	_____		_____	_____	_____	_____
Geography lessons outdoors	_____	_____	_____	_____		_____	_____	_____	_____
History lessons outdoors	_____	_____	_____	_____		_____	_____	_____	_____
Language lessons outdoors (English or French)	_____	_____	_____	_____		_____	_____	_____	_____
Physical education lessons outdoors such as hiking & cycling (excluding competitive or team sports)	_____	_____	_____	_____		_____	_____	_____	_____
Arts lessons outdoors (visual, music, drama)	_____	_____	_____	_____		_____	_____	_____	_____
Guidance lessons outdoors	_____	_____	_____	_____		_____	_____	_____	_____
Other _____	_____	_____	_____	_____		_____	_____	_____	_____

PART C - OPINION QUESTIONS

Please use the scale provided to respond as accurately as possible regarding your feelings about the following statements. Please mark ON a line.

1) I have the experience to provide students with positive outdoor education outcomes.

strongly agree agree disagree strongly disagree

2) I have participated in many outdoor activities, therefore I could teach them.

strongly agree agree disagree strongly disagree

3) I feel that I am not qualified to teach outdoor education.

strongly agree agree disagree strongly disagree

4) I am aware of the Board policy on outdoor education.

strongly agree agree disagree strongly disagree

5) I know where to get the documents and materials needed to teach outdoor education.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

6) If I want to take my class on an outdoor education excursion my supervisor will approve it.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

7) Administrators generally do not want teachers to involve their classes in outdoor activities.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

8) Anyone who takes students on outdoor excursions is at risk of being sued.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

9) Going on long walks in the outdoors is interesting.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

10) I think the woods are full of unpleasant things.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

11) In my spare time, I would rather stay indoors.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

12) I enjoy being outdoors.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

13) Outdoor education involves only wilderness excursions.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

14) I like to read books on outdoor education.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

15) Outdoor education does not fit into the language arts curriculum.

strongly agree	agree	disagree	strongly disagree
----------------	-------	----------	-------------------

16) Many subjects can be integrated and taught using outdoor education methods.

strongly
agree

agree

disagree

strongly
disagree

17) Outdoor education is just an excuse to play outside.

strongly
agree

agree

disagree

strongly
disagree

18) I know of courses teachers can take to improve their outdoor education skills.

strongly
agree

agree

disagree

strongly
disagree

19) Administrators encourage teachers to take advantage of our many natural resources.

strongly
agree

agree

disagree

strongly
disagree

20) I can use the school yard as an outdoor education setting.

strongly
agree

agree

disagree

strongly
disagree

21) Teachers should have extra insurance before teaching any outdoor education lessons.

strongly
agree

agree

disagree

strongly
disagree

22) Administration would discourage a field trip to a local woodlot.

strongly
agree

agree

disagree

strongly
disagree

23) I would have to take my class on a field trip to teach outdoor education.

strongly
agree

agree

disagree

strongly
disagree

24) I do not need to worry about legal ramifications of teaching outdoor education.

strongly
agree

agree

disagree

strongly
disagree

PART D - OTHER FACTORS

Have there been any significant personal, political, or other events that may have affected your involvement in outdoor education with your students?

_____ Yes _____ No

Comment _____

PART E - COMMENTS

Please express your thoughts about outdoor education, this survey, or anything that may be useful in interpreting these results.

Once again, thank you for your participation. Please continue.

APPENDIX E

Letter to the Ethics Committee

L. Balkwill
201 Harvey St.,
Chatham, Ontario
N7M 1M8
February 22, 1996

Dr. L. Morton
Chair of The Ethics Committee
Faculty of Education
University of Windsor
Windsor, Ontario
N9B 3B4

Dear Dr. Morton:

Please accept this letter as request for research approval from the Faculty of Education: Research Ethics Committee. This research will involve a survey of elementary teachers of the Kent County Board of Education. The survey will gather information regarding the attitudes of elementary teachers toward the implementation of outdoor education programs.

A copy of the research proposal is enclosed, including the letter and questionnaire that will be sent to the randomly selected teachers.

Thank you, in advance, for reviewing my request. Your response and any suggestions that you may have concerning this proposal are eagerly awaited.

Sincerely,

Lance Balkwill

APPENDIX F

Letter to the Superintendent

L. Balkwill
201 Harvey St.,
Chatham, Ontario
N7M 1M8
February 19, 1996

Mr. B. Asselin
Superintendent of Education, Elementary - Area II
The Kent County Board of Education
Box 1000
Chatham, Ontario
N7M 5L7

Dear Mr. Asselin:

Please accept this letter as a request for permission to conduct a study that would involve the elementary teachers of the Kent County Board of Education. I wish to use the Board's courier service to send a survey to selected teachers to gain information regarding outdoor education practices in our county.

It is my understanding that there are some extremely effective programs within Kent County that incorporate outdoor education methodologies. Outdoor education has been shown to offer the opportunity to meet many of the educational outcomes outlined in the Common Curriculum - 1995. It allows the teacher to address the needs of students of all backgrounds and abilities through interesting and fully integrated activities, while maintaining a high regard for educational content.

This study will gather information about the teachers who are implementing outdoor education with their classes, those who are not. The results of this study will provide insight into how more teachers can effectively achieve these educational outcomes.

This research is the foundation of my Master's Degree Thesis through the University of Windsor. A copy of the research proposal is enclosed for your inspection. Participation in this study is voluntary and all participants' responses will be strictly confidential.

In order to not overburden these teachers, this survey has been designed to take only 15-20 minutes, and minimal effort to complete.

Consideration of this request, at your earliest convenience, would be appreciated. A summary of the results will be available for review upon request at the completion of the data analysis.

Thank you, in advance, for your cooperation.

Sincerely,

Lance Balkwill

APPENDIX G

Cover Letter and Instructions

April 15, 1996

Dear Colleague:

To complete a Master's Degree Thesis, I am conducting research in the area of outdoor education. Your name was randomly selected from teachers of the Kent County Board of Education as a possible participant for this study. Your participation is very important to me and will be greatly appreciated. Please note that your participation is voluntary and you may decline to respond to any part of the survey.

The enclosed questionnaire will take approximately 20 minutes to complete and will generate valuable information about the use of outdoor education teaching methodologies in our schools. Surveys are identified by number only to track returns and all responses will remain confidential. You may contact me before, during or after the completion of the questionnaire and I will be happy to answer any questions or address your concerns (TAPS - 682-2260; Home 351-7922). Concerns of an ethical nature may be directed to Dr. L. Morton, Chair of the Ethics Committee at the University of Windsor (519) 253-4232 Ext. 3800.

Upon completion of the questionnaire, (or even if you choose not to participate) please return it before May 3, 1996, by courier, in the envelope provided.

I also ask that you do not discuss the survey questions or answers with anyone (except Dr. Morton or me) to ensure that the results remain unbiased.

A summary of the results of this survey will be available for review upon request at the completion of the data analysis.

I understand that you are busy, so I thank you, in advance, for taking the time to respond to my questionnaire.

Sincerely,

Lance Balkwill
Tilbury Area Public School

Reminders

Your answers are confidential.

You may choose to skip any questions.

Please return the questionnaire in the return envelope, regardless of amount completed, by May 3, 1996.

Please do not discuss this with anyone.

Thank you, I appreciate your involvement.

This package includes:

1. A three part survey
 - a) Outdoor Education Questionnaire
 - b) Vocational Preference Inventory, with answer sheet
 - c) Educators Survey
2. A return envelope

APPENDIX H

Results of the Questionnaire

Figures show frequencies of responses for each variable.
Values are in percent.

PART A - BACKGROUND INFORMATION

Gender 51.8 Male 48.2 Female

Undergraduate Major _____

Age

Experience Teaching ELEMENTARY School

2.0 20-29 years
18.8 30-39 years
62.4 40-49 years
15.8 50-59 years
0 60 years or over

1.8 1 - 3 years
11.6 4 - 7 years
8.9 8 -11 years
8.9 12-15 years
19.6 16-18 years
49.1 19 or more years

Present Teaching Assignment

Homeroom Subjects

<u>18.2</u> none	<u>3.6</u> Junior Kindergarten	<u>1.8</u> Kindergarten
<u>7.3</u> Grade 1	<u>5.5</u> Grade 6	<u>1.8</u> Grade 3/4
<u>4.5</u> Grade 2	<u>8.2</u> Grade 7	<u>4.5</u> Grade 4/5
<u>2.7</u> Grade 3	<u>8.2</u> Grade 8	<u>0.9</u> Grade 5/6
<u>5.5</u> Grade 4	<u>0</u> Grade 1/2	<u>0</u> Grade 6/7
<u>8.2</u> Grade 5	<u>0.9</u> Grade 2/3	<u>9.1</u> Grade 7/8
<u>1.8</u> Behaviour Modification		
<u>7.3</u> Other		

Rotary Subjects

<u>45.4</u> none	<u>1.9</u> Library	<u>9.3</u> French
<u>5.6</u> Art	<u>0</u> Health	<u>12.0</u> Physical Education
<u>3.7</u> Music		<u>13.0</u> Learning Resource Centre
<u>9.3</u> other		

Experience Teaching or Supervising Outdoor Education Activities

Please indicate your experience in teaching or supervising outdoor education activities or programs in any capacity. (school, summer camps, canoeing, skiing . . .)

54.5 none
20.0 assistant instructor/supervisor on one to five occasions
6.4 assistant instructor/supervisor on more than five occasions
8.2 head instructor/supervisor on one to five occasions
9.1 head instructor/supervisor on more than five occasions
0.9 full time outdoor education teacher
0.9 other _____

Qualifications in Outdoor Education

Please indicate your qualifications for teaching outdoor education.

- 89.1_ none
 3.6 Outdoor Education Part I
 (Ontario Teachers' Federation course)
 _ 0 _ Outdoor Education Part II
 (Ontario Teachers' Federation course)
 0.9 qualified outdoor education specialist
 6.4 other _____

Other Related Qualifications

Please indicate the related qualifications for which you hold a CURRENT certificate.

- _____ none
 17.3_ Standard first aid or better
 16.4_ CPR basic rescuer or better
 11.8_ Swimming - Bronze medallion or better
 1.8 Canoeing - Level _____
 5.5 other _____ , _____ , _____

Personal Involvement in Outdoor Activities

Use the scale provided to indicate your personal involvement in the following activities (other than with students) for the current year AND for previous years for each item.
 Please place a check mark on a line

	<u>TIMES DURING THIS YEAR</u>					<u>TIMES IN</u>			
	<u>(Mar. 95 - Mar. 96)</u>					<u>PREVIOUS YEARS</u>			
	0	1-5	6-10	>10		0	1-5	6-10	>10
Camping (at a campground)	76.4	15.5	2.7	5.5		32.7	32.7	10.0	24.5
Wilderness camping	95.5	4.5	0	0		77.3	14.5	5.5	2.7
Canoeing or kayaking	75.5	15.5	5.5	3.6		55.5	20.0	8.2	16.4
Hiking or birdwatching	48.2	38.1	9.1	10.9		30.9	32.7	12.7	23.6
Fishing or ice fishing	71.8	12.7	8.2	7.3		46.4	19.1	13.6	20.9
Boating or sailing	56.4	20.0	11.8	11.8		33.6	20.9	12.7	32.7
Skiing or snowshoeing	82.7	10.0	3.6	3.6		55.5	19.1	10.0	15.5
Golf or tennis	56.4	20.0	4.5	19.1		33.6	20.9	7.3	38.2

PART B - OUTDOOR EDUCATION ACTIVITIES INVOLVING STUDENTS

Use the scale provided to indicate how much you involve, and have involved, your students in the following activities.
Use one check for current year AND one check for previous years for each item.

Please place a check mark on a line

	<u>TIMES DURING THIS</u> <u>SCHOOL YEAR</u>					<u>TIMES IN CAREER</u> <u>- ALL PREVIOUS YEARS</u>			
	0	1-5	6-10	>10		0	1-5	6-10	>10
Nature walks on school property	60.0	32.7	5.5	1.8		31.8	38.2	9.1	20.9
Nature walks off school property	73.6	25.5	0	.9		31.8	43.6	7.3	17.3
Camping	97.3	2.7	0	0		80.0	14.5	2.7	2.7
Canoeing	99.1	0.9	0	0		90.9	5.5	0	3.6
Kayaking	100	0	0	0		99.1	0	0.9	0
Cross-country skiing on school property	99.1	0.9	0	0		91.8	7.3	0	0.9
Cross-country skiing off school property	97.3	2.7	0	0		95.5	2.7	0.9	0.9
Orienteering on school property	85.5	14.5	0	0		60.0	30.0	3.6	6.4
Orienteering off school property	95.5	4.5	0	0		71.8	20.9	3.6	3.6
Field trips to natural settings with a guide	77.3	21.8	0.9	0		24.5	52.7	13.6	9.1
Field trips to natural settings without a guide	87.3	12.7	0	0		55.5	30.9	6.4	7.3
Field trips to Provincial parks	84.5	14.5	0.9	0		39.1	48.2	8.2	4.5
Science lessons outdoors	50.9	40.9	2.7	5.5		20.0	40.0	14.5	25.5
Math lessons outdoors	64.5	33.6	0	1.8		37.3	33.6	10.9	18.2

	<u>TIMES DURING THIS</u> <u>SCHOOL YEAR</u>					<u>TIMES IN CAREER</u> <u>- ALL PREVIOUS YEARS</u>			
	0	1-5	6-10	>10		0	1-5	6-10	>10
Technology lessons outdoors	78.2	20.9	0	0.9		72.7	15.5	6.4	5.5
Geography lessons outdoors	72.7	15.5	6.4	5.5		57.3	20.0	9.1	13.6
History lessons outdoors	90.0	10.0	0	0		70.9	18.2	4.5	6.4
Language lessons outdoors (English or French)	71.8	25.5	2.7	0		45.5	20.9	19.1	14.5
Physical education lessons outdoors such as hiking & cycling (excluding competitive or team sports)	66.4	17.3	6.4	10.0		46.4	23.6	8.2	21.8
Arts lessons outdoors (visual, music, drama)	62.7	34.5	2.7	0		32.7	37.3	12.7	17.3
Guidance lessons outdoors	97.3	2.7	0	0		97.3	0.9	0.9	0.9

PART C - OPINION QUESTIONS

Please use the scale provided to respond as accurately as possible regarding your feelings about the following statements. Please mark ON a line.

1) I have the experience to provide students with positive outdoor education outcomes.

<u>6.4</u> strongly agree	<u>45.0</u> agree	<u>35.8</u> disagree	<u>12.8</u> strongly disagree
------------------------------	----------------------	-------------------------	----------------------------------

2) I have participated in many outdoor activities, therefore I could teach them.

<u>7.3</u> strongly agree	<u>37.6</u> agree	<u>46.8</u> disagree	<u>8.3</u> strongly disagree
------------------------------	----------------------	-------------------------	---------------------------------

3) I feel that I am not qualified to teach outdoor education.

<u>10.2</u> strongly agree	<u>39.8</u> agree	<u>43.5</u> disagree	<u>6.5</u> strongly disagree
-------------------------------	----------------------	-------------------------	---------------------------------

4) I am aware of the Board policy on outdoor education.

<u>3.7</u> strongly agree	<u>26.2</u> agree	<u>49.2</u> disagree	<u>20.6</u> strongly disagree
------------------------------	----------------------	-------------------------	----------------------------------

5) I know where to get the documents and materials needed to teach outdoor education.

<u>3.8</u> strongly agree	<u>37.7</u> agree	<u>50.0</u> disagree	<u>8.5</u> strongly disagree
---------------------------------	----------------------	-------------------------	------------------------------------

6) If I want to take my class on an outdoor education excursion my supervisor will approve it.

<u>10.5</u> strongly agree	<u>75.8</u> agree	<u>12.6</u> disagree	<u>1.1</u> strongly disagree
----------------------------------	----------------------	-------------------------	------------------------------------

7) Administrators generally do not want teachers to involve their classes in outdoor activities.

<u>0</u> strongly agree	<u>17.3</u> agree	<u>70.2</u> disagree	<u>12.5</u> strongly disagree
-------------------------------	----------------------	-------------------------	-------------------------------------

8) Anyone who takes students on outdoor excursions is at risk of being sued.

<u>10.6</u> strongly agree	<u>58.7</u> agree	<u>26.9</u> disagree	<u>3.8</u> strongly disagree
----------------------------------	----------------------	-------------------------	------------------------------------

9) Going on long walks in the outdoors is interesting.

<u>37.3</u> strongly agree	<u>59.1</u> agree	<u>2.7</u> disagree	<u>0.9</u> strongly disagree
----------------------------------	----------------------	------------------------	------------------------------------

10) I think the woods are full of unpleasant things.

<u>0.9</u> strongly agree	<u>1.8</u> agree	<u>54.5</u> disagree	<u>42.7</u> strongly disagree
---------------------------------	---------------------	-------------------------	-------------------------------------

11) In my spare time, I would rather stay indoors.

<u>0.9</u> strongly agree	<u>16.7</u> agree	<u>59.3</u> disagree	<u>23.1</u> strongly disagree
---------------------------------	----------------------	-------------------------	-------------------------------------

12) I enjoy being outdoors.

<u>45.0</u> strongly agree	<u>49.5</u> agree	<u>5.5</u> disagree	<u>0</u> strongly disagree
----------------------------------	----------------------	------------------------	----------------------------------

13) Outdoor education involves only wilderness excursions.

<u>0.9</u> strongly agree	<u>0.9</u> agree	<u>71.8</u> disagree	<u>26.4</u> strongly disagree
---------------------------------	---------------------	-------------------------	-------------------------------------

14) I like to read books on outdoor education.

<u>5.8</u> strongly agree	<u>33.7</u> agree	<u>52.9</u> disagree	<u>7.7</u> strongly disagree
---------------------------------	----------------------	-------------------------	------------------------------------

15) Outdoor education does not fit into the language arts curriculum.

<u>0</u> strongly agree	<u>2.8</u> agree	<u>72.9</u> disagree	<u>24.3</u> strongly disagree
-------------------------------	---------------------	-------------------------	-------------------------------------

16) Many subjects can be integrated and taught using outdoor education methods.

<u>23.4</u> strongly agree	<u>72.9</u> agree	<u>3.7</u> disagree	<u>0</u> strongly disagree
----------------------------------	----------------------	------------------------	----------------------------------

17) Outdoor education is just an excuse to play outside.

<u>0</u> strongly agree	<u>2.7</u> agree	<u>63.6</u> disagree	<u>33.6</u> strongly disagree
-------------------------------	---------------------	-------------------------	-------------------------------------

18) I know of courses teachers can take to improve their outdoor education skills.

<u>4.7</u> strongly agree	<u>50.9</u> agree	<u>35.8</u> disagree	<u>8.5</u> strongly disagree
---------------------------------	----------------------	-------------------------	------------------------------------

19) Administrators encourage teachers to take advantage of our many natural resources.

<u>1.9</u> strongly agree	<u>37.5</u> agree	<u>57.7</u> disagree	<u>2.9</u> strongly disagree
---------------------------------	----------------------	-------------------------	------------------------------------

20) I can use the school yard as an outdoor education setting.

<u>16.5</u> strongly agree	<u>78.0</u> agree	<u>4.6</u> disagree	<u>0.9</u> strongly disagree
----------------------------------	----------------------	------------------------	------------------------------------

21) Teachers should have extra insurance before teaching any outdoor education lessons.

<u>4.0</u> strongly agree	<u>24.8</u> agree	<u>68.3</u> disagree	<u>3.0</u> strongly disagree
---------------------------------	----------------------	-------------------------	------------------------------------

22) Administration would discourage a field trip to a local woodlot.

<u>1.0</u> strongly agree	<u>7.6</u> agree	<u>77.1</u> disagree	<u>14.3</u> strongly disagree
---------------------------------	---------------------	-------------------------	-------------------------------------

23) I would have to take my class on a field trip to teach outdoor education.

<u>1.9</u> strongly agree	<u>11.4</u> agree	<u>75.2</u> disagree	<u>11.4</u> strongly disagree
---------------------------------	----------------------	-------------------------	-------------------------------------

24) I do not need to worry about legal ramifications of teaching outdoor education.

<u>0</u> strongly agree	<u>14.7</u> agree	<u>62.7</u> disagree	<u>22.5</u> strongly disagree
-------------------------------	----------------------	-------------------------	-------------------------------------

PART D - OTHER FACTORS

Have there been any significant personal, political, or other events that may have affected your involvement in outdoor education with your students?

29.1 Yes 62.7 No

Comment _____ see comments in Part E _____

PART E - COMMENTS

Please express your thoughts about outdoor education, this survey, or anything that may be useful in interpreting these results.

_____ see Appendix J _____

APPENDIX I

Tables of Correlation Coefficients

Table I₁

Two-tailed Correlations between Current Student Involvement and the Independent Variables within the School Climate Model.

School Climate Variables	n	Correlation Coefficient
Awareness	112	.47***
Administrative support	112	.29**
Legal liability perception	112	.11

*p < .05. **p < .01. ***p < .001.

Table I₂

Two-tailed Correlations between Current Student Involvement and the Independent Variables within the Burnout Model.

MBI Subscales	n	Correlation Coefficient
Emotional exhaustion	107	-.01
Depersonalization	107	-.12
Personal Accomplishment	107	.26**

*p < .05. **p < .01. ***p < .001.

Table I,

Two-tailed Correlations between Current Student Involvement and the Independent Variables within the Personality Type Model.

Personality Type Variables	n	Correlation Coefficient
Realistic	100	.12
Investigative	100	.26**
Artistic	100	.12
Social	100	-.08
Enterprising	100	-.07
Conventional	100	-.09
Self-control	100	-.17
Masculinity-femininity	100	-.01
Status	100	-.03
Infrequency	100	-.04
Acquiescence	100	.13

*p < .05. **p < .01. ***p < .001.

Table I₄

Two-tailed Correlations between Current Student Involvement and the Independent Variables within the Personal Background Model.

Personal Background Variables	n	Correlation coefficient
Interest & Expertise	112	.51***
Undergraduate major	56	-.17
Past outdoor education teaching	112	.37***
Outdoor education qualifications	112	.20*
Age	103	-.17
Years of elementary teaching	112	-.14
Gender	112	
Past personal involvement	110	.30**
Current personal involvement	110	.40***
Past student involvement	110	.47***

*p < .05. **p < .01. ***p < .001.

APPENDIX J

Comments made by Subjects

Results of PART E of the Outdoor Education Questionnaire reporting comments made by subjects - arranged according to model.

Note * indicated general comment

+ indicates a positive comment

- indicates a negative comment

SCHOOL CLIMATE MODEL

- * I would like to do more outdoor education. It's difficult to find the time to plan the activities.
- * Life is busy, it's difficult to fit everything in.
- * I am frustrated by the urban setting of my school's playground
- * I would like more ideas for the primary grades.
- * We need to get teachers out of their classroom.
- * It should be a part of our daily life but not all teachers are prepared for this.
- * Living in the county and teaching in the city opens your eyes to how little the primary children are exposed to nature and natural settings.

Awareness - positive

- + Outdoor ed. can change children's values.
- + Outdoor education in school provides valuable experiences for students who spent so much time in front of video games.
- + Children need to appreciate and care for our world for generation to come, understanding and enjoying the outdoors is a big part of this.
- + I have found children to be intrinsically motivated when involved in outdoor education. The quality of learning is superior to the class experience.
- + I think outdoor education is important and necessary to understand the environment and in turn try to protect and save as much of the environment as possible.
- + Fresh air is good. Exercise is great and non-threatening. Anyone can do it. Escape and relaxing.
- + Outdoor education is unquestionably valuable - though my background is not particularly related to outdoor education - my indoor activities are rejuvenated by exercise and the change of pace of outdoor activity. Physical energy increases mental energy.
- + If a program is structured and functions well it is due to the planning of those well qualified to do so. Others will be enticed by their expertise. The out-of-doors can be a fantastic resource base if the guidance, facilities and structured programs are in place and monitored by a staff in the know.
- + Many areas within an hour drive of Kent County offer a variety of experiences that would be far more beneficial than schools spending \$3000 of students' money to see a play in Toronto.
- + The majority of students in our schools have had little or no exposure to many of the activities discussed in this survey. They are unlikely to get such experience from their families as more and more of them come from socio-economic backgrounds that cannot afford

such pleasures (in time or money). Consequently, respect for nature and natural surroundings is lost among an entire generation. As educators, we must ensure that our students, regardless of age, experience outdoor experiences. After all, what is more important in the development of a child, understanding and experiencing a marsh ecosystem or memorizing the facts on China?

- + Many meaningful learning situations can be achieved.
- + Excellent way to work on cooperation.
- + A very healthy and educational way to learn more of the ever-endangered environment - while having fun of course.
- + In theory and practice I strongly advocate the outdoor ed - hands on approach. There is no question as to its value.
- + Outdoor education is an area that educators can tap into outside the normal classroom environment. I have had to pleasure of taking students on an outdoor ed trip for eight years and have thoroughly enjoyed it.
- + Outdoor education can use 'unusual' settings to motivate students to be more involved.
- + Its sometimes an overlooked potential.
- + Education in the out-of-doors is an area of great importance and should be celebrated.
- + Great way to develop in children respect for the earth.
- + I feel outdoor education is a great way to teach many subject areas. Students love it.
- + I think outdoor education is very important for all students to experience.
- + Used as positive reinforcement, students can earn the privilege of going outdoors.

Awareness - negative

- Outdoor ed is OK but not for all students.
- Requires a great deal of planning. Sometimes more work goes into it than you get back.
- More in the area of physical education.
- Not having a home room has limited my chances to do a field trip involving outdoor ed.
- The kids generally enjoy it to varying degrees. Some kids would rather sit in front of a computer than exert themselves physically outside.
- Bear in mind I am no longer a 'homeroom' teacher.

Administrative support - positive

- + When I was there, outdoor education was encouraged by the Toronto Board in their facility north of Toronto.
- + We easily could design an integrated curriculum

Administrative support - negative

- All the extra paperwork you have to do for the board.
- A recent move to a school where a one week trip to camp Tawingo

- isn't permitted by administration
- Lack of administrative confidence
- My administrator has had a bad experience and it has evidently rubbed off.
- I coordinate a four-day outdoor ed program at Tawingo (Huntsville). The kids and parents think it's great. I really feel that the board and administration disapprove, which leads to general frustration.
- Administration has discouraged us from working outside.
- Kent board has no outdoor ed after teacher's college.
- Kent County Board does not have its own facility for promoting/teaching outdoor ed.
- Overnight trips area not allowed in our school
- Outdoor education does not seem to be stressed in the current curriculum. Also a time factor and lack of integration strategies.
- Outdoor ed "appears" less structured and may be viewed as an "extra".
- There have been many occasions when I've wanted to take students off the school yard for nature walks but I don't want the hassle of permission forms and supervisors.

Liability - positive

- + Risk is no greater than if students are in the gym

Liability - negative

- Overnight - responsibilities, i.e., social and legal.
- Legal implications/ramifications exist.
- Danger of water.
- Student behaviour.
- In this age of the fear of lawsuits, I'm not too keen on taking a class of 30 intermediate students into the outdoors unless there was a structured and supervised program available which was age appropriate.
- It's a valuable program that is undervalued and overlooked due to the great demands of the present curricula and the emphasis on being accountable.
- I enjoy the outdoors but don't always enjoy sharing it with students. The responsibility scares me.
- I'm not sure of the legalities involved in outdoor education
- I am not comfortable with unfamiliar woods without a guide.
- student allergies
- I enjoy the outdoors but am reluctant to take 30+ grade 8's out of the school.

Funding - negative

- Funding!
- Money
- Funding problems

- Cost for extended trip to Dorset.
- Social contract cuts, cuts in funding - Harris government.
- Cost of bussing.
- Lack of equipment.
- It will be cut dramatically with the cutbacks in funding.
- Funding is the key issue. Funding for curriculum, in-service and actual excursions. Board commitment is essential.
- money is always in question.

BURNOUT MODEL

- * As you can see, I'm burning out. Society, parents, the board administrators no longer think of teachers as people.
- * This is how I feel because of the assignment I have. How I feel varies with the type of students I have from year to year.
- * I prefer not to complete this section.

PERSONALITY MODEL

- * I prefer not to complete this section.

PERSONAL BACKGROUND MODEL

- * I certainly thought more now about how I could effectively teach LRC subjects outdoors. Interesting ideas!
- * I've never really thought about using outdoor ed in language, but I will now.

Interest & expertise

- * I wish I was trained further how to do outdoor education - especially in the technology areas.
- * I wish I had more skills in this area, then I would feel more confident
- * I would benefit from a workshop.
- * I participated in Project Wild during teachers' college, however I could use a refresher.

Interest & expertise - positive

- + I used to work for MNR. This has influenced my involvement in outdoor ed.
- + Family camping.
- + I enjoy nature and children appreciate things more in reality.
- + I have a great respect and love for the outdoors instilled in me by my father and extended family.

Interest & expertise - negative

- Knee surgery.
- Classroom management & procedural organization remain a problem for me - therefore I avoid non-traditional settings for fear that such a change would only compound the problem.
- If this is what you are interested in then fine. It doesn't interest me.
- Never given it any real thought before.
- It is probably a very valuable experience but it does not interest me personally.

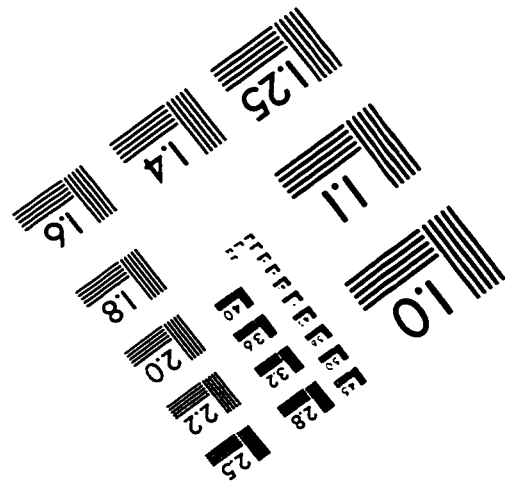
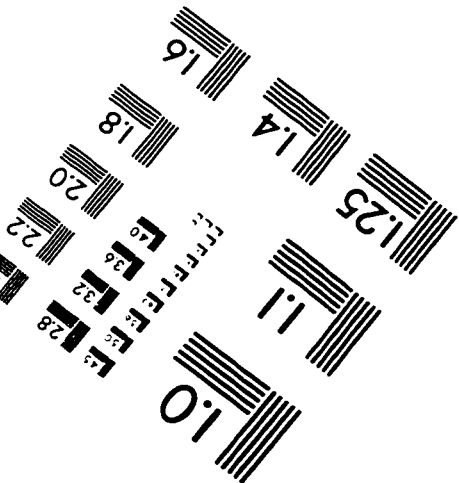
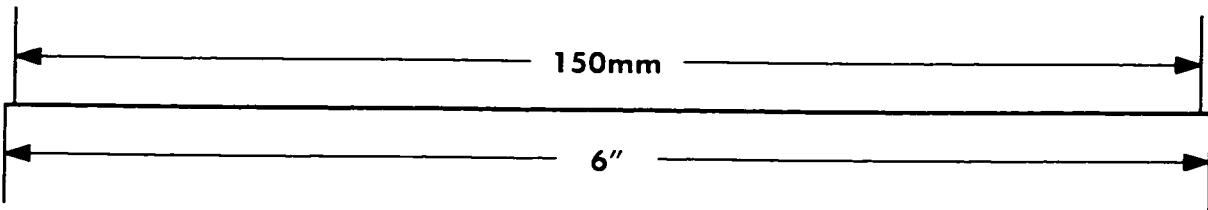
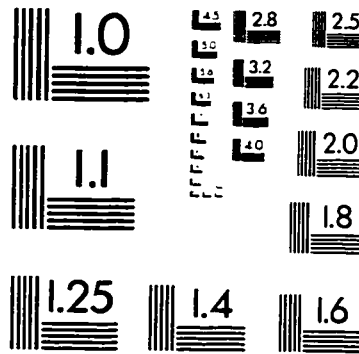
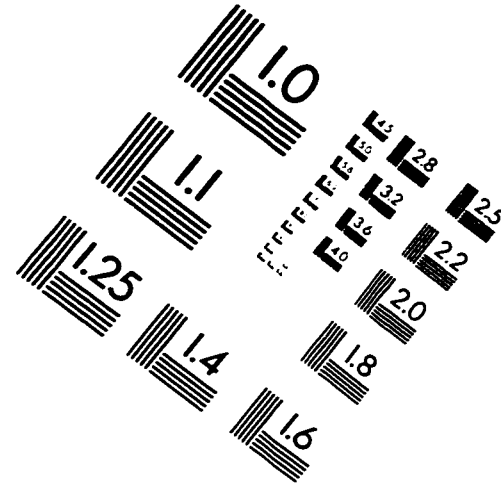
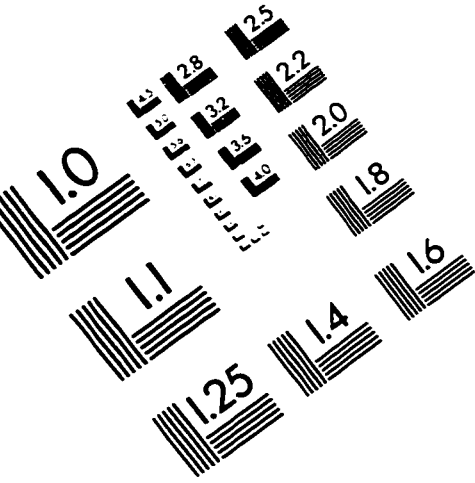
VITA AUCTORIS

Lance Balkwill was born in 1965 and was raised in Kingsville, Ontario. He graduated from Kingsville District High School in 1984. From there he went on to the University of Windsor where he obtained the degree of Bachelor of Human Kinetics - Honours Kinesiology in 1988.

Lance obtained a Bachelor of Education degree from the University of Windsor in 1989. Since 1989 he has been employed as an elementary school teacher with the Kent County Board of Education.

He is a graduate of the National Outdoor Leadership School, Outdoor Educators Course, University of Utah, 1991 and holds instructors certificates from the Ontario Recreational Canoeing Association and the Ontario Wild Water Affiliation. With this research, he is completing a Master of Education Degree at the University of Windsor in 1996.

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THE VOICE APPROPRIATION CONTROVERSY
IN THE CONTEXT OF
CANADIAN CULTURAL PRACTICES

by

Kelly Bondy Cusinato

A Thesis Submitted to
the Faculty of Graduate Studies and Research
through the Department of Communication Studies
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts
at the University of Windsor

Windsor, Ontario, Canada



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ABSTRACT

THE VOICE APPROPRIATION CONTROVERSY IN THE CONTEXT OF CANADIAN CULTURAL PRACTICES

by

Kelly Bondy Cusinato

'Voice appropriation' or 'cultural appropriation' can be described broadly as the practice by authors, painters, film makers, and other artists of depicting characters, themes, or 'voices' from cultures not their own, often with first person intimacy and the implied authority of someone on the 'inside'. This thesis offers a comprehensive examination of the complex issue of voice appropriation. It thereby provides a corrective to simplistic accounts found in the Canadian press.

After defining voice appropriation and situating the practice in a broad historical context, this thesis identifies a number of the most common voice appropriation arguments. These arguments are arranged into a typology based on similar themes, and then compared and analyzed in terms of their rhetorical type and ethical strength. Rhetorical theory, argumentation theory and ethical analysis are consecutively applied in this study as tools to increase our understanding and appreciation of voice

appropriation in all of its philosophical, rhetorical
and moral complexity.

DEDICATION

To my husband Dean for always believing in me and reminding me of the importance of believing in myself.

ACKNOWLEDGEMENTS

Special thanks...

To Dr. Stanley Cunningham for his wisdom, advice, understanding and support.

To Dr. Stuart Selby for his kindness, honesty and always having his door open.

To Ann Gallant for always finding the time to help.

To my parents and grandparents for supporting my every endeavor.

To my sister Nicole for always making me laugh.

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PREFACE

INITIAL STATEMENT OF THE PROBLEM

In the Winter of 1989, the Women's Press of Canada, a Toronto-based, feminist publishing house, rejected three stories for an anthology of short fiction, Imagining Women, on the grounds that the authors used characters and voices from races and cultures not their own. According to the Women's Press, these practices constituted a form of racism and violated its recently issued policy guidelines which stated that the Women's Press "will avoid publishing manuscripts in which the protagonist's experience in the world, by virtue of race or ethnicity, is substantially removed from that of the writer" (Women's Press, "Guidelines for Submissions", 1988-1990).

A few years later, in March of 1992, the Concordia University Women's Centre refused to display two paintings of African North American¹ women because they depicted the women in a "stereotypical" manner, carrying baskets of fruit on their heads (Hurst 1992, 11[H]). Of special relevance is the fact that the artist, Lyne Robichaud, who created these paintings was not a member of the African Canadian community (Montreal Gazette, 18 April 1992, 8[E]).

Shortly after that, during the 1994 Canadian Juno awards, Canadian First Nations people were confronted with the possibility that Canada's first Juno for Aboriginal music might be won by a white woman pretending to be Aboriginal. The Juno category was for best music of Aboriginal Canadian recording, a category that stipulates only that the music be Aboriginal (whether traditional or modern), not the nominee (Taylor 1994, 6[C]).

"Red Sky", as the nominee called herself, was the young female singer nominated in this category for "The Prayer Song" from her album "Red Sky Rising". Red Sky identified herself to the Canadian press and public as the daughter of Chief Dan George. Although Chief George had died in 1981, his son Leonard claimed Red Sky was not his sister and that she had appropriated a sacred First Nations prayer song associated with the George family. Apparently, Red Sky had learned the song a few years earlier while in Vancouver when she befriended the George family, and then went ahead and recorded the song as her own. The George family, in effect, accused Red Sky of stealing the song (even though the word "steal" is not explicitly used in the newspaper account), since she had never met Chief George and certainly had not received permission to record the song. As it turned out, Red Sky was not Aboriginal at all. In fact, she is a non-Aboriginal singer named

Nancy Nash. As for her claim that she is Chief George's daughter, Nash told the press the Chief had been her father in a "past life" (Taylor 1994, 6[C]).

These are but three examples of a larger controversy that is growing in Canadian arts and writing circles, a controversy that constitutes the focus of this thesis. The controversy is commonly referred to as the 'cultural appropriation' or 'voice appropriation' debate.² Today, and certainly in Canada, the controversy revolves mainly around the voice appropriation of First Nations or Aboriginal peoples, and to a lesser extent around African North American voice appropriation. Although journals and the mainstream press³ have defined cultural (voice) appropriation in various ways, it can be described broadly as the practice of authors, painters, film makers, and other artists depicting characters, themes, or 'voices' from cultures or races not their own, often with first-person intimacy and the implied authority of someone on the 'inside'. The issue encompasses both fictional and non-fictional works. In virtually all cases in which it is a problem, the voice appropriated is that of an oppressed minority or subordinate group (Brand 1993, Browning 1991, Mills 1994).⁴

Recent Canadian instances of cultural appropriation in the arts include the controversy surrounding W.P.

Kinsella's supposedly comic portrayal of a fictionalized version of the actual Hobbema Indian band (Godfrey 1992, 1[C]) and the recent "squabble" over the claim that Emily Carr's paintings of the Pacific coastal wilderness and its abandoned Aboriginal villages represent the 'appropriation' of the "imagery of First Nations peoples" (Mays 1994, 15[C]). In addition, some African Canadian women have been vocalizing their anger at Katerina Thorsen's recent collection of paintings. In these paintings, which depict highly sexualized images of Black Canadian women, with larger-than-life breasts, Thorsen gives her interpretation of Black women (Browning 1992). What angers many opponents most about Thorsen's work, is that she is a white, North Vancouver artist defining the images of and reinforcing the stereotypes some Canadians have about African Canadian women.

The practice of 'appropriating' the voice of another is not new. One of the oldest forms of appropriation, is that of male writers using the female voice in the first person to tell a story (Taylor 1981, 1). Today, it is commonplace to view films and read novels which are written by persons of a culture or race different from those they depict. For example, few of the many films depicting indigenous ways of life have actually been written or directed by members of these cultures. Most of these films have chosen

not to employ indigenous actors and actresses to play the roles and have instead opted for white actors and actresses dressed in traditional Aboriginal garb, with made-up faces. Some of the most famous examples of films such as these are They Died With Their Boots On (1941), Broken Arrow (1950), and Cheyenne Autumn (1964), in which white actors (Anthony Quinn, Jeff Chandler, and Ricardo Montalban) dress up and play Aboriginal chiefs. In the epic, They Died With Their Boots On, the director, Raoul Walsh, did not employ real Sioux Aboriginals to play the parts. Instead, he used hundreds of Filipino extras and some Caucasians to play Aboriginal People (Nash and Ross 1985, 3354). Another example of the appropriation of Aboriginal characters in films is the appropriation of Inuit characters. Most noteworthy is Anthony Quinn's role as "Inuk" in The Savage Innocents (1960). In this film, Quinn hunts and fishes "Eskimo style" for the audience, while his voice is dubbed into what film critics called "pidgin English" (Nash and Ross 1985, 2749). The various media reports discussed in this thesis will clearly indicate that voice appropriation is still alive and flourishing in the 1990s.

Since the label of 'appropriation' is most often applied to works created by persons of a more dominant group about persons of a minority or subordinate group⁵ the issue of cultural appropriation presupposes a social

context where artists' voices from both group levels (minority and dominant) are not equally heard. Thus, when the dominant voices tell the stories of or about the subordinate culture (e.g. African-Americans, Aboriginal peoples, or women), a growing number of artists and academics claim that the dominant artists are "stealing" an important cultural artifact from them (Dawes 1993, 10, Lutz 1993, 247). Even when "stealing" is not explicitly charged, the connotation is generally there and the implication is unmistakable. The connotation of trespassing is also at work (Keeshig-Tobias 1990, 7[A]). Today, certainly in the Canadian mainstream press, cultural appropriation has taken on a high profile; and Stuart Blackley (Blackley 1993, 52) contends that cultural appropriation has been attacked more viciously in the voice appropriation debate than gender appropriation since race usually differentiates people in society more severely than gender. Thus, while chapter one will briefly mention the history of gender appropriation, the primary focus of this thesis will be the cultural (racial) appropriation of voice in North America with special emphasis on Canada.

Since the cultural appropriation⁶ claim can be inflated to such an extreme (wherein the only acceptable narratives to write about or otherwise depict would be autobiographies), some artists and commentators

in their counter-arguments, have made chilling reference to the book burning in the 1930s by the Nazis and imagery of "thought police" (Young 1992, 6[B]). Critics, such as Kathryn Young (1992), argue the ensuing debate over cultural appropriation has even included references to "racism", a term being employed by opponents on both sides of the controversy (Young 1992, 6[B]). Others argue that waving the "red flag of censorship" so early in the debate simply ends discussion of an important issue about respecting the heritage and culture of others (Thomas 1992, 36[C]).

Amidst the various claims and counter-claims made about appropriation, the mainstream press in Canada has been quick to transform the issue into a debate about censorship. In this transformation, the deeper issue of race and voice appropriation tend to be eclipsed. According to the mainstream media's account, there are those, on the one hand, who think that cultural appropriation should be regulated because they believe that language is a conveyer of culture-"that it carries the ideas by which a nation defines itself as a people" (Keeshig-Tobias 1990, 7[A]). These critics argue that stories are more than mere entertainment; that they influence and illustrate how a people, a culture, think. Many Aboriginal artists contend that it is ironic that so many white artists are fascinated by Aboriginal Peoples' stories and

experiences, and yet not so long ago the Canadian government basically outlawed Aboriginal language and culture in their racial assimilation attempts. These artists claim that Aboriginal People need justice and equality not only in land claims and education issues, but also in publishing, copyrighting, the film industry and the arts in general (Keeshig-Tobias 1990, 7[A]). Too often, however, and as chapter two will illustrate, the private marketplace tends to publish the more established and dominant voices, and ignores minority voices. Furthermore, some commentators claim that many of the works done by white artists about other cultures have served only to perpetuate stereotypes or, at best, to speak patronizingly on behalf of the less powerful groups rather than letting these groups speak for themselves (Hutchinson 1992, 8[A]).

On the other side of the argument, according to the mainstream media, are those who oppose anything that harnesses freedom of expression. These artists and commentators often exaggerate the issue to an extreme in order to prove their point. For example, commentator Linda Hurst (1992) equates recent interpretations of censorship equivalent to "[t]hou shalt not appropriate the culture/voice/experience of others - if you haven't lived it, you can't write it/film it/paint it" (Hurst 1992, 1[H]). Others who are against the condemnation of this supposed cultural

appropriation argue that putting oneself in another's shoes creates better understanding in our multicultural society and is consistent with artistic freedom. In other words, these spokespersons claim there is more than one way of 'knowing' and experiencing (Cameron 1990, 67). They quickly link any discussion of the issue of appropriation with censorship (Paris 1992, Giangrande 1990, Enright 1992). Censorship for these spokespersons is defined as "literature sanitized so it does not offend anyone" (Greer 1992, 22). Some spokespersons even claim that "those who seek to censor others seek nothing less than to impose their own ideological visions on the imaginations of others" (Greer 1992, 22).

Framing the debate in such a dichotomous manner and with special emphasis upon censorship is both deceptive and confusing because it eclipses important factors such as racism, misrepresentation, stereotyping, funding, access, right to communicate, opportunity, copyright violation, and the whole issue of ownership of one's cultural heritage and experiences. The very notion of property being extended to include experience and artistic/ intellectual work is problematic and complex just by itself; and yet this issue is only one dimension of the perplexing voice appropriation debate. Accordingly, this thesis plans to demonstrate that the voice appropriation debate is far more complex

than much of the mainstream press has shown it to be. For instance, this thesis will show that there are identifiable 'types' of arguments being employed on both sides of the debate, and that some of the arguments exhibited by both sides of the debate are really less convincing than they might seem at first glance. This thesis also wrestles with the deeper ethical components of appropriating the voice of another and the representations that result from such appropriations.

While Chapter Three deals with methodology more thoroughly, a preliminary indication about the methods and approaches employed in this thesis can be offered at this time. Using an historical approach, Chapter One and Two will broadly place the problem by exploring the evolution of both gender and racial (cultural) appropriation within the genres of art and literature. Due to time constraints, the practice of gender appropriation by white male writers will be examined only briefly in terms of its relationship to the practice of cultural (racial) appropriation. The lengthy history of gender appropriation in art and literature lends some clarity to the issue of cultural (racial) appropriation. Chapter One of this thesis broadly reviews the general practice of appropriating the voice of another; Chapter Two more specifically maps the history of the practice and the controversy in a distinctly Canadian context. Chapters One and

Two, then, situate and define voice appropriation within an historical context. Following this, Chapter Three will briefly outline how this thesis will apply elements of rhetorical theory, argumentation theory, and ethical theory in its examination of the production of cultural texts and their use. Chapter Four, which investigates the structure of the claims and counter-claims that have surfaced in the Canadian debate, attempts to secure greater clarity by situating these various claims and counter-claims within a taxonomy of arguments. Since the issue of cultural appropriation is immediately ethical because of the language in which it is often formulated (theft, freedom), the penultimate chapter examines its moral import. Specifically, this chapter will explore voice appropriation within the context of such familiar communication values as access to communication and the right to communicate. It will extend that treatment with special application to John Rawls's "veil of ignorance" strategy, along with Carol Gilligan's (1982) and Nel Noddings's (1984) theories of an "ethic of care" in order to identify the role of justice and caring within the voice appropriation controversy. Lastly, the final chapter of the thesis reviews a number of general discoveries and suggests what may be the best approach to securing greater harmony vis-a-vis this kind of cultural conflict.

CHAPTER 1

I. HISTORICAL OVERVIEW: GENERAL HISTORY OF THE PRACTICE OF VOICE APPROPRIATION

The current voice appropriation controversy is not without precedent. In fact, there exists a fairly lengthy history within the arts of what is now called 'gender appropriation.' Gender appropriation occurs when an author or artist, usually male, takes on the gender of the opposite sex in order to tell a story or create a character. In addition to gender appropriation, there is evidence of a history of racial or cultural appropriation. A review of the literature pertaining to the voice appropriation debate indicates that there is a continuous history of the practice of 'appropriating' the voice of another in fiction and non-fiction works. In North America alone, historical examples include the nineteenth century theatrical practice of "blackface minstrel shows" where, according to author Eric Lott (1993), "white men caricatured blacks for sport and profit" (Lott 1993, 3). Significantly, the title of Lott's book refers to this practice as "theft". Even earlier in this history, however, there is evidence of the male appropriation of female voices such as Samuel

Richardson's Clarissa and Charles Dickens's character, Esther Summerson, the female child depicted in Bleak House. Much later in time, James Joyce also appropriated the female voice in his characterization of Molly Bloom in Ulysses (Taylor 1981, 1). More recently, William Styron's book The Confessions of Nat Turner (1967) deserves special consideration as a paradigm case of cultural (race) appropriation, using first-person identity to recapitulate the personal experiences of an African American slave. While this section does not intend to offer a comprehensive history of the practice of voice appropriation, the few examples of appropriation given provide clear evidence that voice (cultural) appropriation existed long before The Globe and Mail reported on the controversy.

i. Gender Appropriation: Male Authors' Appropriation of the Female Voice

According to Virginia Woolf (1979 reprint), prior to the nineteenth century, literature often consisted mostly of soliloquies, not dialogues. In many of these soliloquies, Woolf contends that "the man is to be heard talking to himself and for the most part about himself" (Woolf 1979, 65). Although Woolf admits women were frequently represented, she maintains that these

portraits are pure sexual distortions:

it is becoming daily more evident that Lady Macbeth, Cordelia, Ophelia, Clarissa, Dora, Diana, Helen and the rest are by no means what they pretend to be. Some are plainly men in disguise; others represent what men would like to be, or are conscious of not being; or again they embody that dissatisfaction and despair which afflict most people when they reflect upon the sorry condition of the human race (Woolf 1979, 65).

Despite her somewhat overstated claim, which focuses mainly on the works of Shakespear and Dickens, Woolf's comments illustrate that there is some evidence, at certain points in the history of fiction, of male novelists taking on or 'appropriating' the voice of a women for a significant portion of the novel, and/ or using the first person to tell a woman's story. According to literary critic Anne Robinson Taylor, in Male Novelists and their Female Voices: Literary Masquerade (1981), this narrative practice, which Taylor refers to as a "literary masquerade", is more common in French and British literature than in Russian or American literature (Taylor 1981, 1). In her critique of the "literary masquerade", Taylor quotes Oscar Wilde, who stated that: "Man is least himself when he talks in his own person" (Taylor 1981, 2). Based on the claim that one can learn more about an author in his/her disguise than one can from his/ her autobiography, Taylor investigates the male appropriation of the female voice in these famous pieces of literature.

According to Taylor, Samuel Richardson's love for masquerade began early in life. Richardson was a printer by trade but his writing career began at only thirteen years of age when

he was asked by neighbourhood women to write their love letters for them (Taylor 1981, 58). In his fifties, Richardson finally wrote his first novel, Pamela. Not surprisingly to Taylor, the story was written from the perspective of a little servant girl. Later on, Richardson wrote Clarissa, a novel described by Taylor as full of "struggle and tension" as expressed through the "gut" of a woman (Taylor 1981, 65). In Clarissa, Richardson attempts, through Clarissa's eyes, to create a woman's most intimate feelings of being watched and imprisoned as Clarissa suffers through a variety of sexual violations (Taylor 1981, 65). It is apparent in Taylor's outspoken commentary that part of the outrage she feels over the appropriation of the woman's voice in literature is the arrogance and pretense with which many male authors depict the most intimate female experiences.

Similar to Richardson in certain aspects, Charles Dickens created many female characters in his career. Writing mostly during the late eighteenth hundreds, Dickens's female characters ranged from "good" to "bad", with many based on Victorian stereotypes. One of Dickens's less towering characters was Esther Summerson, the female character and narrator in Dickens's Bleak House. In Bleak House, Dickens alternates third-person present-tense narration with a first-person past-tense by Esther Summerson (Bentley, Slater, and Burgis 1988, 25). In Taylor's opinion, Esther Summerson is a character whose weakness owes much to the constricting effects of female stereotypes which dominated much of the male-authored, nineteenth century literature. Taylor, moreover, contends that Dickens's male

characters were created as polar opposites to his female character. While his male characters tell the story as if in control of the world around them, his female character (Esther Summerson) offers an alternative view of that world in which weakness and vulnerability dominate. For example, Taylor quotes two introductory passages from Dickens's novel that illustrate how differently his male and female characters convey themselves. At the beginning of David Copperfield, David, one of Dickens's male characters, introduces himself to the reader with unmistakable authority:

Whether I shall turn out to be the hero of my own life, or whether that station will be held by anyone else, these pages must show. To begin my life with the beginning of my life, I record that I was born (as I have been informed and believe) on a Friday, at twelve o'clock at night (Dickens 1977, 49).

Taylor contrasts David's grand introduction, in which he begins by "questioning his own potential heroism" with Esther's "wearying and inveterate self-apology" (Taylor 1981, 131). Esther introduces herself to the reader by stating: "I have a great deal of difficulty in beginning to write my portion of these pages, for I know I am not clever. I always knew that" (Dickens 1977, 17). Taylor, generalizing from select portions of Dickens' novels, contends that these alternate introductions illustrate that unlike his male characters (David and Pip from Great Expectations), Dickens's female character (Esther) cannot support the "weight of her own world" (Taylor 1981, 131).

According to Taylor, despite the fact that Esther was one of Dickens's weaker characters and that Dickens never wrote

another sustained narrative in the female voice after Esther, Esther remains an important character in the Dickens collection. Taylor argues that Esther was Dickens's "way of exploring what growing up would be like as a woman, what residing in the feminine consciousness would involve" (Taylor 1981, 132). Taylor's critique of Dickens's female character illustrates that it is not the practice of appropriating the voice of a woman she opposes, for she argues such "literary masquerades" are an essential part of the creative process. What Taylor does object to is the often inaccurate and simplistic portrayals that resulted when male authors attempted to create a distinctly female perspective. Thus, Taylor's criticism is both noteworthy and convincing at times mostly because it directed less at the fact that male authors took on such projects, and more at the fact that the resulting characters were simply not convincing as 'real' women.

Unlike Richardson and Dickens, James Joyce's most famous female character does not occupy a lengthy or central space in his novel. Nevertheless, despite Molly Bloom being given relatively small space in Joyce's immense novel, Ulysses, she remains the female voice best known in this piece of work (Taylor 1981, 189). Taylor argues that Joyce's Irish Catholic background pervades his work since "[t]hroughout his fiction floats the image of the ideal spiritualized woman" (Taylor 1981, 193). As his fiction develops though, Taylor claims that "the idealized woman is replaced by motherly, sexual women with whom all sorts of male debasements are possible" (Taylor 1981, 193).

Taylor maintains that her concern with all of these male authors' works is the element of falsification present in them, "the revelations these so-called women actually make about their authors, the extent to which they are versions of their creators in skirts" (Taylor 1981, 3). Male stereotypes of women were inevitably created and sustained in many of these literary works since male authors often relied on excessive marks of politeness to indicate a "good" woman. Furthermore, Taylor argues that there was a tendency by some of these male authors (Charles Dickens and James Joyce) to reduce women to their bodies alone by depicting their women characters shallowly, as often being obsessed with men and sex. Taylor illustrates how the male author's lack of knowledge about women and their experiences can result in superficial portrayals and unconvincing female characters. Taylor believes other male authors (although she cites no specific contemporary examples), from the past and present, often use the female mask to emphasize the relative powerlessness of women, their vulnerability and weaknesses (Taylor 1981, 17). In support of her arguments, Taylor claims that James Joyce himself, describes Molly Bloom in a one-dimensional way, as a woman whose every thought is related to her obsession with sex and sexuality (Taylor 1981, 17). Taylor maintains that Joyce's narrow characterization of Bloom, as a sexual object, lacks conviction and strength because it neglects the intellectual, emotional, and spiritual complexity most women possess.

Despite her criticisms of the accuracy of many male authors'

portrayals of women, Taylor in effect, links the appropriation of the voice of another in literary works with the elements of play and exploration, and argues that these elements are central to storytelling. Taylor argues that traditionally, women were seen as having fewer emotional constraints than men. This was appealing to many male authors who felt that writing in the voice of a woman would allow them to take advantage of the wider emotional range available to women (Taylor 1981, 6). As a result, Taylor labels the practice of male authors appropriating the voice of women, a form of "masquerade". Specifically, Taylor argues that "[m]asquerade is a form of play, and adopting a female voice seems to have been play of a challenging, pleasurable sort" (Taylor 1981, 3). Again, it is worth noting that the weight of Taylor's disapproval lies more on the side of falsification than it does on the method of voice appropriation itself.

ii. Race Appropriation: Blackface Minstrelsy as "Love and Theft"

Just as male authors engaged in "gender masquerades", adopting the voices of women to tell their stories, other examples from the past illustrate that white, mostly Southern cultures similarly found it appealing and challenging to engage in "race masquerades". Instead of taking on the voice and persona of a woman to tell a story or enact a scene, white, mostly male actors masqueraded as Black Americans, singing and

dancing in a "stereotypical" manner. Eric Lott in his authoritative Love and Theft: Blackface Minstrelsy and the American Working Class (1993) describes this nineteenth century theatrical practice of "blackface minstrelsy" as being organized around the "explicit 'borrowing' of black cultural materials for white dissemination" in which white males dressed in ragged "Negro" costumes, with darkened faces made up in greasepaint or burnt cork, danced, sang and played instruments on stage (Lott 1993, 3-5). The effect of these "blackface" minstrel shows, Lott argues, was the distortion of racial tensions by portraying slavery as amusing and acceptable. Despite this distortion, the minstrel troupes became such a popular form of nineteenth century theatrical practice that even American presidents, such as Lincoln, were entertained by them (Lott 1993, 4). The white man's fantasies about the Old South shaped the white actors' "re-inventions" of Black North American culture as a whole, and the "cultural commodity of blackness" was born (Lott 1993, 3).

In fact, Lott argues (although he could be overstating this point) that "without the minstrel show" there would have been "no" works of fiction such as Uncle Tom's Cabin (1852), Adventures of Huckleberry Finn (1884), and Norman Mailers' White Negro (1957) (Lott 1993, 5). While the early minstrel shows likely influenced later depictions of Black culture, it is questionable whether these later works can be said to exist only because of the minstrel show. Still, Lott argues that famous non-fiction works such as John Howard Griffin's Black

Like Me (1961) would likely not exist (Lott 1993, 5).

It is more evident that the popular Amos and Andy radio show which ran from the late 1920s to the early 1950s had its roots in the earlier Blackface minstrel shows. Freeman F. Gosden and Charles J. Correll, the white men who created and played Amos and Andy, developed the characters from an earlier traveling Blackface show they did in Chicago (Dunning 1976, 31). Amos Jones and Andrew H. Brown were played as Harlem Blacks who owned the Fresh Air Taxi Company. The characters were depicted as polar opposites, with Amos being the straight, church-going, family man, and Andy the perfect fool who chased women, smoked "stogies" and was of very low intelligence (Dunning 1976, 32). Gosden and Correll continued their song-joke routine using Black American dialect, until their radio show became one of the highest rated programs in 1931 (Dunning 1976, 31). The Amos and Andy show continued to influence America's perception of Black culture, and even evolved into a short-lived television show in the 1950s. In 1954, due to both the general decline of radio and a series of protests against the show launched by the National Association for the Advancement of Coloured People (NAACP), the Amos and Andy radio show was canceled (Dunning 1976, 35).

In light of the previous examples of the appropriation of the African American race (culture),

Lott interprets Blackface performance as the first formal, public acknowledgment by whites of Black culture.⁷ The aspects of "appropriation", "theft" if you will, in the case of Blackface minstrelsy are apparent since images and stereotypes of Black culture were enacted by white actors, for commercial profit. In order to perfect their stage images, many white performers regularly visited plantations to observe Black Americans in their daily activities and some even hired African American men to teach them Black folk songs (Lott 1993, 59). Many nineteenth century audience members actually believed they were watching authentic Black American performers and saw the stage images as accurate representations of African American culture (Lott 1993, 20). Furthermore, Lott remarks that there is a certain paradox inherent in the Blackface minstrel shows:

The minstrel show was, on the one hand, a socially approved context of institutionalized control; and, on the other, it continually acknowledged and absorbed black culture even while defending white America against it (Lott 1993, 40).

Inherent in the controversy about the practice of Blackface minstrelsy is the same issue that exists today in the practice of appropriating the "voice" of another. On one side, at issue is the exploitation and stereotyping of a culture and a people when the image-maker is not a member of that culture. On the

other side of the debate, is the acknowledgment that beneath these performances there often exists a benign desire by outsiders to explore and celebrate another culture. Unfortunately, it was more acceptable to nineteenth century audiences to watch whites with made-up faces "celebrate" Black American culture than to actually have African American actors depict their own culture.

**iii. Willian Styron's The Confessions of Nat Turner:
A Paradigm Case of Appropriation in the First Person**

Closer in time, William Styron's book, The Confessions of Nat Turner (1967), deserves special consideration as a paradigm case of voice appropriation in a semi-fictional (semi-historical) novel. Using first person identity, Styron, a white, Southern-born author, wrote a novel from the perspective of Nat Turner, the African American slave who led a brutal insurrection in Southampton County, Virginia in 1831. In the introduction to his novel, Styron tells his readers that where there was factual evidence of Nat Turner and the insurrection he "rarely departed from the known facts", but in areas where there is little knowledge in regard to Nat or his motivations, Styron says he allowed himself "the utmost freedom of

imagination in reconstructing events" (Styron 1967, xi). From here, Styron proceeds to write in the first person, thus becoming Nat Turner himself as a literary device. Styron's critics focused on this common literary device, claiming that a white, Southern author could never "know" how a "Negro" slave would feel or think (Kaiser 1970, 96). Thus, a spirited debate erupted over the ethics or appropriateness of Styron's use of the 'voice' of Nat Turner, especially in a novel based partly on actual historical events.

The criticisms of Styron's novel and some rejoinders are evident in two separate volumes of commentary: William Styron's Confessions of Nat Turner: A Critical Handbook (Friedman and Malin, 1970), (hereinafter referred to as the Friedman volume), and William Styron's Nat Turner: Ten Black Writers Respond (Clarke, 1968), (hereinafter referred to as the Clarke volume). In the Clarke volume, ten African American commentators voice varying degrees of discontent with Styron's account of Nat Turner. Collectively, the ten contributors to the Clarke volume maintain that Styron's distortion of Nat Turner was deliberate (Clarke 1968, viii).

African American critic, Alvin F. Poussant stands out as one of the strongest critics of Styron's novel. Poussant does not object to a novelist using his imagination to write a work of fiction. What does

disturb Poussant is the fact that Styron is a white Southern man, raised in a racist society who has difficulty freeing himself from his own false perceptions (Poussant 1968, 17). Because of Styron's own white, Southern identity, Poussant argues that he cannot truly place himself inside the psyche of a Black slave. Poussant believes Styron, intentionally or not, projects typical white stereotypes about Black Americans in his fiction. Styron's account perpetuates a stereotypical belief that Black people rebel because of an "unfulfilled psychological need to be white" (Poussant 1968, 20).

Poussant believes Styron "effectively emasculates Nat through his images and selections of what 'truths' to tell" (Poussant 1968, 21). Examples of this emasculation include Styron's description of Nat as an "awkward soldier" who was unable to kill his oppressors and who vomited at the sight of blood during the murders. In criticism of Styron's novel, Poussant contends that "Styron was an unwitting victim of his own unconscious racism for which he alone cannot be held fully accountable" (Poussant 1968, 22). There is a moral deficit to all this: Poussant goes on to argue that authors such as Styron must accept responsibility for whatever part their book plays in perpetuating racist myths in our predominantly white society. This is especially the case, according to

Poussant, when the book is as widely publicized as Styron's was because of the potential psychological impact the book could have on the North American public (Poussant 1968, 18).

Furthermore, Poussant maintains that another impropriety has to do with the perspective of those who reviewed the novel for mainstream magazines. Most of the critics who were asked to review the book and who raved about Styron's ability to "crawl" into the mind and body of a Black American slave were white (Poussant 1968, 24). This amplifies the offense of a white Southern author writing a book from the perspective of an African American slave because only white critics and scholars were called upon to judge whether Styron had actually managed to penetrate deeply enough into a Black man's psyche. Thus, the distinctly Black American 'voice' was essentially silenced twice over in Poussant's opinion.

There are others, however, who disagree with some of Poussant's views. For example, literary critic John A. Williams does not believe the right to explore and depict the lives and thoughts of African American people is the "private domain" of Black American writers (Williams 1968, 45). According to Williams, the lives and struggles of Black Americans are often only brought into mainstream public awareness through the works of popular white writers or artists. This is because

often times their works are more acceptable to the nation at large than are similar works by African American or African Canadian artists and writers (Williams 1968, 46). Even so, Williams still takes issue with some of Styron's choices. For instance, one flaw according to Williams is that only the Negro characters in Styron's novel use the real "earthy", derogatory, swear words. Although Williams is somewhat less convincing in this particular argument, he contends that the irony inherent in Styron's choice of words is that these particular swear words that Styron puts into the mouths of the Black Americans in his novel are four-letter, Anglo-Saxon words unlikely to have been used by nineteenth century slaves (Williams 1968, 49). Williams also agrees with Poussant that Styron's Southern biases came through in his novel. Williams concludes that "[i]n short, I find the characters to be not the creation of an artist, but the creation of an artist who has never forgotten he is also a southerner" (Williams 1968, 48).

Additional negative evaluations came from critic Mike Thelwell who contends that Styron's book has many factual inaccuracies and perpetuates white stereotypes. For example, Styron inaccurately puts forth the recurring theme in his novel that the entire insurrection failed because of lack of Black American support, yet in Nat's original confession there is

no evidence of Nat doubting the support of his followers. Thelwell also maintains that the content of Styron's book is dangerous because people have given it more credit than it deserves as an historically accurate account because it confuses fact and fiction. The events that occur in the book are accepted as the "truth" by much of the public simply because Styron tells his readers that they are "historical." The public is being seriously misled, according to Thelwell, if they regard Styron's novel as revealing the true essence of Black slavery (Thelwell 1968, 79). Thus, he continues, Styron's book is important not for its accuracy regarding slavery (because it is not that accurate), but because it exemplifies the "persistence of white Southern myths, racial stereotypes and literary cliches even in the best intentioned and most enlightened minds" (Thelwell 1968, 91).

One more significant commentary from the Clarke volume is that made by historian, Herbert Aptheker. Offering a distinctively historical assessment of the novel, Aptheker maintains that there are many discrepancies between Styron's account and the actual history of Nat Turner. Styron omitted important aspects of Nat's history including the fact that he fled from one of his early owners in the mid 1820s and then returned later due to religious qualms and was ridiculed by many of his Black American peers for this (Aptheker

1970, 89). This fact also occupies an extensive portion of Nat's original confession to lawyer/ reporter Thomas Gray; and yet for some reason Styron chose to omit this testament from his novel. Aside from a few other complaints Aptheker has about minor historical discrepancies, he does admit that when Styron directly quotes from the original confession, he does so accurately. Unfortunately, Aptheker concludes, Styron is factually inaccurate in at least one area when he portrays Will (a friend and member of the insurgent group who completes the murderous acts Nat has begun but cannot bring himself to finish) as a mad, brutal, monstrous killer. In fact, Nat only refers to Will in the original confession by saying that he knew he could trust Will because Will had told him "freedom was as valuable to him as it is to any man" (Aptheker 1970, 91). Aptheker argues that this context is important because portraying Will the way Styron does suppresses the real motive for the murders (mainly that of being an oppressed and degraded slave). The most significant historical inaccuracy in Styron's account, according to Aptheker, is his claim that Nat's insurrection was the only "effective and sustained revolt in the annals of American slavery" (Styron 1967, author's note). This is simply not true. Aptheker reminds us that there is evidence of many insurrections in early America on the part of slaves from 1691 in

Virginia to 1864 in Mississippi (Aptheker 1970, 92).

In contrast to the many negative commentaries in the Clarke volume directed at Styron's endeavor, there are a substantial number of positive reviews compiled in the Friedman volume. At the time of the book's release in 1967, most critics featured in the Friedman volume agreed that it was a respectable fictional work. Commentator C. Vann Woodward writing in The New Republic called the novel "[t]he most profound fictional treatment of slavery in our literature" (Friedman and Malin 1970, 72). Raymond A. Sokolov of Newsweek said the book was "[o]ne of those novels that is an act of revelation to a whole society" (Friedman and Malin 1970, 73). According to critic Louis D. Rubin Jr., Styron had dealt with interracial issues in his other novels but never had he attempted to tell a story about and by a Black American. Styron was not satisfied until he tried to become Nat Turner himself. Rubin claims Styron really gets to the root of Nat's hatred of the whites, but that he is also careful not to portray these feelings as "an inherent racial characteristic" (Rubin 1970, 77). Rather, according to Rubin, Styron makes it clear to his readers that "[s]ocial conditions, not heredity and biology, set him apart", that "[t]he walls of separateness are man-made" (Rubin 1970, 77).

Accordingly, Rubin contends that Styron's account

is a very wise book in the sense that it is knowledgeable about the institution of slavery and Styron himself did as much research as possible before writing the book. In Rubin's mind, Styron effectively portrays the horror of slavery for Nat. He is considered less than a man by the whites and he is constrained from any real human contact with them. When Styron speaks through Nat about some masters being nicer than others he usually qualifies Nat's thoughts or words by adding that even the nicest whites patronized the Black American slaves (Rubin 1970, 80). Moreover, Rubin disagrees with the critics who claim Styron was falsifying history by using language unlikely to be used by nineteenth-century slaves. Instead, Rubin contends that this type of language serves two purposes. First, by having Nat speak his thoughts in what some critics call the language of a white twentieth-century intellectual, Styron introduced readers to the other side of Nat Turner--the intelligent side that the whites of the time did not see. Secondly, this type of language is, for the twentieth-century reader, much easier to understand and identify with than the fractured English which was probably characteristic of nineteenth-century, uneducated slaves (Rubin 1970, 86).

Shaun O'Connell, an English teacher and reviewer for The Nation (1967), thinks that Styron vividly

captured the cruel and oppressive world of a Black American slave in his novel (Friedman and Malin 1970, 99). Styron's success, however, is moot since critic, Ernest Kaiser, argues that reviewers such as O'Connell reveal how little they know about Black slave history when they make comments like that. Kaiser insists that it is extremely difficult to create Black American characters in historical fictions, even for Black writers let alone white, Southern ones (Kaiser 1970, 92). Significantly, Kaiser's comments allude to the difficulty of creating characters outside one's own race or culture, not to the impossibility of such an endeavor.

According to critic Raymond A. Sokolov, even though Nat Turner's actual revolt may have failed (because it did not liberate Black Americans but only resulted in greater oppression and segregation because of increasing fear among whites) the "voice" Styron creates in Nat "speaks across great barriers of time and race" (Sokolov 1970, 45). Sokolov explicitly refers to Styron's narrative "voice" as his "big gamble", for if that voice had failed him, the book would have been a disaster, "a melodrama clotted with pretension" (Sokolov 1970, 45). Styron succeeds in making the reader think just as he/she is convinced, a brilliant slave must have thought. In defending Styron's use of first-person narration, then, Sokolov argues that

Styron did not emasculate or minimize Nat's character. He urges us to see that Styron is an artist, not an activist and that for artists "history, no matter how extreme its events, is incomplete without the act of the imagination that releases the deepest imports of its energies" (Sokolov 1970, 50).

II. SUMMARY

In conclusion, then, this chapter's coverage of the history and evolution of gender and race (cultural) appropriation illustrates that there is ample historical evidence in North American and abroad of the practice of voice appropriation. In particular, Styron's The Confessions of Nat Turner and its critics highlight the voice appropriation controversy with particular application to the contemporary and historical use of African American images and voices. In such a practice, authors and entertainers of a dominant culture borrow and sometimes, exploit images, identities, language, and behavior of another, non-dominant culture, often with the intimacy of first-person narration. While 'voice appropriation' is the contemporary expression used to describe this phenomenon, critics have also used other words such as "borrowing", "sharing", "stealing", and "theft" when discussing

the controversy. A number of these descriptors ("stealing", "theft") express explicit moral criticism, while in others ("sharing", "borrowing"), the moral connotation is less evident.

The history of voice appropriation, and the remainder of this thesis demonstrates that the voice appropriation debate comprises a number of recurrent themes, often expressed in the form of claims and counter-claims most of which are epistemic in focus. Those who argue that the practice of appropriating the voice of another is problematic claim: i) that voice appropriation, by placing a writer or artist within another culture, with such intimacy and compelling verisimilitude, commits an act of trespassing or usurpation; ii) that appropriation traffics in facile images or stereotypes which greatly falsify conditions within the non-dominant cultures; iii) that appropriation trivializes and minimizes serious inequities; iv) and that dominant-culture artists are incapable of truthfully re-presenting non-dominant cultural realities. Among the counter-claims one also encounters certain patterns: v) that voice appropriation, by crossing cultural boundaries, is a defensible tool of instruction; vi) that there is more than one way of 'knowing'--one does not have to be born into a culture/identity to understand or accurately depict that culture/identity; vii) that

cases such as, say, Styron's The Confession of Nat Turner, are sufficiently truthful as historic portraits; viii) and that the true art of storytelling or recreating through visual images lies in an artist's ability to step outside his/ her own skin and imagine life as another.

CHAPTER 2

DEFINING VOICE APPROPRIATION IN CANADA

Despite the lengthy history of the practice of appropriating the 'voice' of another to tell a story, sing a song, or paint a picture, the current debate surrounding the ethics or 'appropriateness' of voice appropriation is still relatively new in Canada. Although it is difficult to specify the precise point in recent history when the voice appropriation debate entered the public forum, Canadian daily newspapers and academic journals suggest that the current public controversy over the issue began in the late 1980s. This chapter, then, will trace the voice appropriation debate in Canada from and during its development, beginning in the late 1980s to the present time.⁸ The venues within which this historical development and definition took place are the cultural, literary, and funding bodies that do much to define Canada's cultural landscape. Through all of this, the broader idea of access, a minority culture's right to self-expression and even the right to communicate, figure as recurrent themes.

I. VOICE APPROPRIATION AS A FUNCTION OF PUBLISHING GUIDELINES AND CULTURAL COMMITTEES

i. Voice Appropriation and The Women's Press (Canada)

The earliest and most salient public controversy in Canada was sparked when the Women's Press, a feminist publishing house in Toronto, rejected three stories for an anthology of short fiction, Imagining Women, on the grounds that the writers were not members of the non-dominant cultural groups they portrayed. To support their decision, the Women's Press invoked their "Guidelines for Submission", revised in the late 1980s. The guidelines state that the Women's Press publishing policy precludes the house from publishing writing

- a) which adopts stereotypes by using generalizations or oversimplifications about a particular group of people
- b) in which a writer appropriates the form and substance of a culture which is oppressed by her own
- c) in which a writer from a dominant group writes from the point of view of a protagonist (main character) from a non-dominant group; for example, a heterosexual woman writing a novel where the main character is a lesbian
- d) in which the analysis includes women of Colour as a supplement to a text, rather than incorporating women of Colour into the research, analysis, content and structure (Women's Press, "Guidelines for Submissions" 1988-1990 [Hereinafter referred to as "Guidelines"]).

Consistent with these guidelines, the Women's Press explicitly states that it is "actively seeking" material by and about: First Nations women, women of Colour, women with disabilities, working class and poor women, lesbians, and bisexual women ("Guidelines"). Furthermore, since the Women's Press perceives feminism as a liberation movement that must include all women, it opposes all systems of oppression that women face today. Included in these systems of oppression are racism, anti-semitism, ethnocentrism, classism, heterosexism, ableism, and ageism ("Guidelines").

According to Canadian writer Marlene Nourbese Philip (1990), when the debate began following the Women's Press decision to reject the short stories, racism was the principal concern that the Women's Press and other artists were experiencing over the practice of appropriating the voice of another. However, the mainstream media quickly translated that dominant concern into an issue of censorship. "Censorship of white writers; censorship of the imagination; censorship by publishers. Censorship in all its myriad forms became, in fact, the privileged discourse" (Philip 1990, 209). Philip views censorship as the "cultural and political barometer which a society uses to measure its freedoms" (Philip 1990, 209). The issue of racism has never captured the degree of attention that

censorship has enjoyed in Canada. In fact, Philip argues that racism has never been as "privileged a discourse as censorship" and she cites two recent examples as proof that the free speech/ anti-censorship argument commands precedence over racism. These examples include the University of Western Ontario professor Philip Rushton's theories of racial superiority, and a public lecture at University of Toronto in 1987 by Glen Babb, the South African consul (Philip 1990, 210). In both cases, the issue of racism was swiftly eclipsed by the free speech debate. Philip believes that the failure on the part of the Canadian public to understand and admit how pervasive racism really is represents a disturbing attitude. She maintains that "[a]t the heart of this attitude lies a paradox: the ideology and practice of racism has as old a tradition as that of the rights of man" (Philip 1990, 210). Furthermore, Philip contends that racism manifests itself in such crucial areas as funding, publishing, distribution, and critical reception (Philip 1990, 214).

Despite the incomplete manner in which the media framed the appropriation debate and the Women's Press Guidelines, the Women's Press insists that they have a major commitment to ensuring that publishing is accessible to groups of women who have not been published in the past, as well as to supporting the

works of new (unpublished) writers. Initially, then, the voice appropriation issue was never intended to highlight the aspect of white writers and their rights, although that is the way the debate has since evolved. Since the Women's Press decision, the mainstream media and many Canadian writers/ artists continue to debate whether white women writers or white writers in general ought or ought not to use the 'voice' of the 'Other' in their works. Unfortunately, Philip argues, there is little or no discussion about how to enable more Black and Aboriginal women to get into print without having to establish more publishing houses dedicated to publishing works by minority authors (Philip 1990, 213). In short, Philip's comments lead us to believe that the issue of access to publishing by minorities has been largely eclipsed in the Canadian context by the shift in focus to censorship.

ii. Pressure on The Writers' Union of Canada

Following the debate among Canadian writers that resulted from the Women's Press decision, the Writers' Union of Canada felt pressured at its Annual General Meeting in 1989 to make some form of public statement about the appropriation issue. Subsequently, it passed a motion condemning the failure of the Canadian Charter

to protect freedom of expression and the prevention of far-reaching intrusions into the critical privacy of the writing process (Philip 1990, 216). Philip interprets the Union's statement as exemplifying a "tawdry display of white, male privilege" (Philip 1990, 216). Debate continued privately among Canadian writers inside and outside the Writers' Union over the next few years, and soon a number of academic journals were publishing substantive articles on voice appropriation (See Brand (1993) and Hoy (1993)).

Three years later, in 1992, the voice appropriation debate exploded again in the mainstream media and in academic journals following a refusal by the Concordia University Women's Centre to display two paintings of Black women. The reasons given were that the paintings depicted the women in a "stereotypical" manner, carrying baskets of fruit on their heads. Someone pointed out that the artist who created the paintings, Lyne Robichaud, is not a member of the Black community (Toronto Star, 11 April 1992, 11[H]). Very quickly, academic journals and the mainstream media dedicated considerable attention to the voice appropriation controversy, although not always explicitly using the term 'appropriation'. For example, the April 1994 issue of University Affairs featured an article discussing political correctness titled, "How Far is Too Far?". In the article, author Tim

Lougheed argues that:

[f]or many professors, a recent segment on a CBC Prime Time News documentary was proof that the quest for political correctness had gone too far. In that documentary, a professor recounted how a group of lesbian feminist students prevented him from discussing a lesbian feminist poet in his class because he was not himself a lesbian feminist (Lougheed 1994, 7).

The Canadian Journal of Native Studies has also published articles investigating the history and ethics of the voice appropriation debate. In one of these articles, Hartmut Lutz (1990) argues that intellectual and cultural appropriation is part of a larger process of displacement of Aboriginal peoples.

The debate became so heated in Canada that the Canada Council, the body that awards grants to artists, received formal recommendations from its Advisory Committee on Racial Equality. (Calgary Herald, 2 May 1992, 6[B]). After its own two-year study, the Advisory Committee on Racial Equality had recommended that the Canada Council adopt the following criteria in awarding grants where appropriation was at stake:

the differing needs of communities, the need for written permission in certain instances, the need to maintain respect for cultural tradition, the importance of training background for artists working in cultural traditions other than their own (Calgary Herald, 2 May 1992, 6[B]).

While 'voice appropriation' is not explicitly used in the document, it is clear that the issue is front and center.

Canada Council, however, rejected the recommendations. Its head, Joyce Zeman, remarked that "cultural appropriation is a serious issue but formal guidelines are not the solution" (Globe and Mail, 8 April 1994, 2[A]). Zeman reassured angry artists that "there have never been and will not be limits imposed on artistic imagination or freedom of expression" (Calgary Herald, 2 May 1992, 6[B]). To this day, no guidelines effectively operate within the council's deliberations and so the Council's juries are free, as they have been in the past, to award grants based solely on the merit of the application.

Zeman's decision to reject the Advisory Committee's proposal sparked an internal division within the Writers' Union of Canada. This rift became so intense that verbal shouting matches and nasty accusations in writing became commonplace at Union meetings and in Writers' Confidential, the Union's private newsletter. The debate was "apparently resolved" at the Union's Annual 1992 general meeting when it was decided that writers should be free to write on any issue, in any voice, as long as they do so with sensitivity (Ross 1994, 1[C]).

The apparent resolution was short lived. Soon after, heated debate erupted once again when June Callwood, a well known journalist, biographer, author, and founding member of the Writers' Union of Canada,

delivered the Margret Lawrence Memorial Lecture at the annual general meeting of the Writers' Union.

In her speech Callwood said:

We will not survive if we do not find the common ground. The style of raw accusations which prevails now...diverts energy and focus from the real issues of our times, which are poverty, violence and the suffering of children (Ross 1994, 1[C]).

During the winter of 1993/1994, well after this speech, Callwood resigned from the Union after a sequence of charges from other writers that she was 'racist'.⁹ Since then, at least two other Union members have also resigned over the controversy surrounding the voice appropriation debate. The Union continues to struggle with the question of whether a white writer may presume to tell the stories of, or use the voice of, other cultures¹⁰ and races.

As with the Canada Council, the Writers' Union of Canada affirmed the freedom of imagination and the freedom of expression of all writers at its 1992 Annual General Meeting in Ottawa. At the same time, the Union is also sharply critical of what it calls "cultural misappropriation." Cultural misappropriation, it says is the "taking--from a culture that is not one's own--intellectual property, cultural expressions and artifacts, history and ways of knowledge, and profiting at the expense of the people of that culture" (Annual General Meeting Report 1992). Thus, while theft or

stealing are not explicitly charged, the terms 'taking' and 'misappropriation' make it quite apparent that unethical behavior is at stake. Indeed, the Union's policy statement stresses concern that cultural misappropriation contributes to the "exploitation and misrepresentation of cultures and the silencing of their peoples" (Annual General Meeting Report 1992). Despite the Union's recognition of cultural misappropriation, the Union stressed that such an acknowledgment should not be construed as an endorsement of censorship or an attempt to encourage racial or ethnic segregation (Annual General Meeting Report 1992).

iii. The Toronto Arts Council and Cultural Equity

In an attempt to deal with the growing appropriation controversy and the tough questions posed by many minority artists about equality (or lack thereof) in gaining access to grants and funds in Canada, the Toronto Arts Council, one of the largest arts councils in Canada, addressed the issue of cultural equity in 1993 (Chapman 1993, 5). Cultural equity can be defined broadly as power-sharing policies that assist Aboriginal artists and artists of Colour in creating and distributing their productions alongside, not separate from, "mainstream" art. The equity

initiative inherent in the Toronto Arts Council's 1993 policy statement stipulates that all artists have equal access to grants and granting decisions. The goal of various cultural equity strategies implemented by the Toronto Arts Council, such as "The Fresh Arts Program", designed for Aboriginal and Black Canadian youths and for "Native Women in the Arts", is to make resources and distribution systems available to all people (Saujani, 1994). This also entails increasing the number of Aboriginals and people of Colour employed on the boards that represent various racial and ethnic groups.

The Toronto Arts Council began to make these changes in an attempt to redress the discrepancy between the Council's own representatives and the cultural and ethnic diversity within the Toronto community. This restructuring process began in early 1992 with initiatives to various 'minority' artists to define cultural equity in an open dialogue. After soliciting public opinion, the Toronto Arts Council undertook a study on the barriers to access. The study was conducted in the form of open discussions at numerous public meetings in local galleries in Toronto. This type of forum gave Aboriginal artists and artists of Colour a chance to speak freely about the problems they face. Subsequently, by the end of 1992, many changes had been made at the Toronto Arts Council.

In fact, by 1992 one quarter of the Toronto Arts Council board were people of Colour, equipped with voting and decision-making power (Saujani 1994). Council members now feel positive about the restructuring, and claim there is no tokenism involved. They also believe that the Council receives distinctive perspectives from these minority representatives that they never got before.

Despite the positive sentiments now expressed by the Toronto Arts Council members and many previously marginalized Canadian artists, many Canadians still oppose such cultural equity initiatives. Two common objections to cultural equity as a policy, continue to surface in the Canadian debate. The first objection is that spreading money around to accommodate people who did not get this money in the past lowers artistic standards. The second objection states that giving special consideration to specific groups encourages these groups to remain in specific racial/ ethnic "ghettos" (Saujani 1994; Bissoondath 1994; Lau 1994). Other opponents of cultural equity policies, such as Toronto Star arts critic, Christopher Hume, argue that cultural equity is a suspicious term and that it is dangerous to encourage people to represent themselves primarily by their race, ethnicity, or sexual orientation. Hume thinks that the Toronto Arts Council's initiatives will only reinforce the "cultural

ghettos" it set out to correct. In addition, Hume and other writers have questioned how money specifically set aside for a particular group of people is supposed to make these people feel equal to everyone else. On the contrary, such a procedure may only make them feel different, alienated, and segregated (Saujani 1994). Most opponents of cultural equity policies (not unlike opponents of affirmative action programs) feel that there is ample opportunity within the existing structures, and that people must simply search harder for these opportunities. Writer Neil Bissoondath, in particular, has been an outspoken minority-critic of special treatment. Bissoondath's position is particularly clear in his recent book, Selling Illusions (1994) (see below, pp.70-71).

iv. "Writing Thru [sic] Race Conference"

The most recent excitement in the voice appropriation debate began in early 1994, when "Writing Thru Race", a conference organized by a sub-committee of the Writers' Union' of Canada, the Racial Minority Writers' Committee, was scheduled to take place in July 1994 in Vancouver. The controversy erupted when Reform Party MP Jan Brown proclaimed that if public money (a \$22,500 grant from Canada's Department of

Heritage) was to subsidize or pay for that event, it should not exclude key segments of the Canadian population--white writers. After Brown's announcement, writers Robert Fulford and Pierre Burton were repeatedly shown on Canadian television news denouncing the publicly funded conference. In response to Fulford's critical comments about public funds being spent on a closed conference, Roy Miki, coordinator of the "Writing Thru Race" conference and chairperson of the Racial Minority Writers' Committee argued that the conference was consistent with Canada's official multiculturalism policy. Miki claimed multiculturalism is a "federal policy made official by the Multiculturalism Act of 1988" and that the minority writers' conference was an attempt to publicly acknowledge the cultural and ethnic pluralism of Canadian society (Miki 1994, 23[A]). Miki denounced Fulford and his criticisms by maintaining that "while our contemporary world is undergoing radical changes right before our very eyes, columnists like Mr. Fulford, who should know better, want everyone to return to the comfort of a monolithic Canadian 'identity'" (Miki 1994, 23[A]).

Shortly after the squabble between various writers over the "Writing Thru Race" conference and evidently in response to Brown's and Fulford's complaints, Michel Dupuy, Minister of Canada's Department of Heritage,

canceled the \$22,500 grant offered to the "Writing Thru Race" conference (Globe and Mail, 4 July 1994, 1[C]).

Vocal segments of the Canadian public and many white writers were outraged at the conference, as was Brown, since the workshops offered at the conference were open only to non-white writers. Indeed, the conference itself was open to only 150 First Nation writers and writers of Colour. Excited by the controversy, the mainstream media quickly circulated whatever information they could obtain about the conference or the debate surrounding it, despite the fact that in the past there have been other closed conferences and workshops in Canada for visual artists and filmmakers of Colour or First Nation identity. Although some of these closed conferences in the past may have generated local controversy, none ever attracted this degree of national coverage. In a Globe and Mail editorial, Michael Valpy voiced his disapproval of the "Writing Thru Race" conference by accusing the Writers' Union of Canada of "advocating racial and cultural censorship under the sham intellectual doctrine of voice appropriation and organizing a racially segregated conference paid for with public funds" (Valpy 1994, 2[A]). Similarly, in a speech at the University of Toronto, Fulford stated his frustration with the entire issue of voice appropriation and political

correctness, claiming "Canadians don't want to be disturbed by confrontation, unpleasant truths, direct statements, unpopular ideas, or challenges...[b]ut keeping a lid on disturbing thoughts supresses free inquiry, speech and discussion" (Fulford 1994, 24).

Roy Miki and William Deverell, organizers of the conference, cited section 15(2) of the Canadian Charter of Rights and Freedoms as proof that there is nothing wrong with public funds being allocated to events for a minority segment of society. Deverell, quoted in the Globe and Mail, called the conference an opportunity for non-white writers to "share their problems in the comfort of their own numbers without the eyes and ears of Big White Brother to mute their voice, or indeed, their anger" (Globe and Mail, 8 April 1994, 2[A]). Miki believes the conference attracted a great deal of attention because "it's about language, writing, literature, which people perceive as being the very core of their cultural identity. It's a much more threatening area than the visual arts" (Globe and Mail, 16 April 1994, 1[E]).

As a result of public outcry and largely negative media coverage, the conference was, in the end, funded through private donations from unions and writers such as Margret Atwood and Robert Munsch. Additional funds were contributed by the Canada Council, the Ontario Arts Council, the City of Vancouver, and the British

Columbia Ministry of Small Business (Globe and Mail, 4 July 1994, 1[C])). Ironically, despite the volume of public attention the conference received prior to the meeting date, when the actual conference did take place in July 1994 the mainstream media and the Canadian public virtually ignored it. There was very little coverage, for instance, in the Globe and Mail. It appears that once white writers and certain segments of the Canadian population who opposed the conference were reassured that Heritage Ministry funds were not financing such an "exclusionary" conference, they and the mainstream media were not really all that concerned with what "minority" writers discussed behind closed doors. This lack of follow-up coverage may indicate an atmosphere of indifference that often exists in certain segments of the Canadian population when it comes to minority issues. It appears that the media only deemed the conference 'newsworthy' when opponents of the conference were angry about Heritage funds being used to facilitate the conference. Similarly, when Canadians were reassured taxpayers' money would not be spent on this conference, the fact that minority writers felt a need to meet behind closed doors in the first place and the subsequent discussion were apparently of little concern to the media or the general public.

II. VOICE APPROPRIATION AS A FUNCTION OF HISTORICAL PROCESSES: ACCESS, FUNDING, PUBLISHING, AND POLICY IN CANADA

i. Access

According to a number of artists and academics in Canada speaking out against the practice of cultural appropriation, there exists a long history of inequality in this country. This includes the Canadian government's policies of institutionalized racism aimed at First Nations people, African Canadians, and Chinese immigrants. Such policies, some commentators argue, have worked to encourage the dominant culture to steal, share, borrow or appropriate from minority cultures. Quoting Fuse Magazine's 1992 "Call for Submissions" for its 1993 issue dedicated to cultural appropriation, Rozena Maart (1993) states that the call mentions that the term 'cultural appropriation' has become one of the most "contentious terms used in/ for examining the exercise of social power in the realms of culture and creativity" (Maart 1993, 45). Following the widespread response to the call for submissions, Fuse Magazine produced a double-issue edition in the summer of 1993 dedicated solely to the cultural appropriation debate. The issue gave Canadian artists, most of them

members of minority groups, a chance to explain to the Canadian public why they see voice appropriation as such a sensitive issue, and to make suggestions about what can be done to resolve the growing controversy.

According to Kwame Dawes (1993), an English professor at South Carolina University, cultural appropriation involves much more than the question of whether a person "different from myself because of sex, race, sexual orientation or history" can "effectively write about my experience in a way that I can connect with" (Dawes 1993, 9). As a writer himself, Dawes allows that he and other writers must conclude this is possible. However, Dawes differentiates between "exploitative readings" of another's experiences and "readings that emerge out of dialogue and honest interaction founded on common humanity" (Dawes 1993, 9). The problem with approaching the cultural appropriation controversy from the dimension of honest interaction and dialogue, according to Dawes, is that it presupposes an "even playing field" in Canada, which simply does not exist. Instead, Dawes maintains Canadian society is "marred by significant inequities which have, for years, led to the exclusion of 'minorities' and communities not regarded as belonging to the 'mainstream' of the society from telling their own stories" (Dawes 1993, 9).

Furthermore, Dawes continues, art is essentially a commodity that exists within a larger political and ideological environment. Art is not separate from culture, nor does it transcend it. In Dawes' mind, "[a]rt is money, art is power, art defines effectively" (Dawes 1993, 10). While not all people would agree with Dawes's definition of art, Dawes contends that cultural appropriation can be seen as the injustice it is only if Canadians first accept that white artists have essentially dominated the arts for too long, and that their positions in the arts are the result of political and cultural will, not just artistic ability (Dawes 1993, 10). Accepting these 'realities' not only legitimizes non-white artists' plea to tell their own stories, but also suggests that important changes in the methods of funding and the composition of the institutions that support the arts financially must be made. Dawes argues that non-white artists should be "encouraged, aided, supported and funded such that they can tell their own stories" (Dawes 1993, 10). At the same time, white artists should be scrutinized by funding agencies and discouraged from engaging in projects that will result in the perpetuation of negative stereotypes of non-white cultures (Dawes 1993, 10). According to Dawes, accountability on the side of white artists in Canada has been minimal, largely because white artists have enjoyed both the necessary

funding and power. Dawes declares that Canadian artists and the general public must acknowledge that "art is inextricably linked to funding, and that funding is a deeply political issue which requires highly politicized artists to challenge it. One day we may be able to leave the artists to do their art, but this is not the day" (Dawes 1993, 15). Dawes, that is, sees clearly that here and now, voice appropriation is closely allied to the crucial availability of funding.

ii. Funding

If access means anything, then, it means being able to secure funding and to command a reasonable return (revenue) from one's efforts. Richard Fung (1993), a Toronto-based video producer and writer, envisions the movement to oppose cultural appropriation as essentially a "strategy to redress historically established inequities by raising questions about who controls and benefits from cultural resources" (Fung 1993, 18). Because of the urgency in Canada (and elsewhere) to preserve Aboriginal culture, much of the cultural appropriation debate has focused heavily on Aboriginal People (Fung 1993, 20). For example, cultural appropriation commentator, Stuart Blackley

arguably insists that within the voice appropriation debate, race is a more crucial "difference" than gender or sexual preference since white women, white gays and white lesbians, despite their distinctiveness, are still part of the mainstream (Blackley 1993, 52). Because both this debate and the very act of appropriating the 'voice' of another affects Aboriginals and African Canadians/ Americans the most, Blackley contends that these are the people who must set the parameters of the debate over the appropriation of their culture, just as women must for issues of abortion and rape. In short, Blackley reserves the role of defining appropriation to the oppressed minorities themselves. He maintains that "[t]his stops no one from freely speaking, from having an opinion. But authority must be acknowledged to those whose culture or bodies are the very battle grounds on which the debates are played out" (Blackley 1993, 52). In tandem with Blackley's claims about the advantages white culture has enjoyed in Canadian society, Fung refers to the widespread and generally accepted practice of 'appropriation of sounds' in the music industry. For example, Keith Richards of the Rolling Stones, in a recent Globe and Mail article cheerfully admitted that he lifted many of his guitar "licks" from Chuck Berry. Other musicians have not been as gracious and honest about the origins of their music according to Toronto

Arts reporter Elizabeth Renzetti (Renzetti 1995, 1[C]). Despite the fact that much of contemporary music includes layers and layers of appropriation, Fung argues this does not alter the fact that, "in a context characterized by both racism and the commodification of culture, it is primarily white men who have controlled and benefited from the musical forms developed by non-white and Third World practitioners" (Fung 1993, 21).

Some commentators (e.g. Rozena Maart) go further than Fung, alleging that because of white domination in our society, voice appropriation is a one-way street: Only Aboriginal people and people of Colour are the favourite targets of appropriation by others but are themselves incapable of appropriating. While some would contest viewing voice appropriation as solely a minority group phenomenon, Maart insists that Aboriginals and African North Americans cannot appropriate from others simply because they do not have "possession or control of prevailing power structures--the institutionalized, structural or systematic components of white domination" (Maart 1993, 48). Thus, voice appropriation is yet another mirror to confront us with the enormous inequities in economic and social power. Kwame Dawes (1993) proposes that funding agencies and policy-making structures be reconstructed, allowing non-white artists to be included

in the "artistic mainstream" (Dawes 1993, 10). Such a restructuring process must also include a redefining of what constitutes the 'mainstream'. This entails moving away from the notion that "anything must be either white or acceptable to whites" in order to constitute the mainstream culture (Dawes 1993, 10). Furthermore, Dawes argues, only when this restructuring takes place, will it be possible to "conceive of a situation in which artistic value operates side by side with cultural and political awareness in the judging and funding of projects within this society" (Dawes 1993, 12).

In his perspicuous article, "Working through Cultural Appropriation" (1993), Richard Fung delineates the core philosophical components of the voice appropriation issue. Fung's analysis of voice appropriation is so comprehensive it has implications extending far beyond the funding dimension of the debate. His comments have particular relevance to this section of the thesis since he supplies a striking and profound philosophical justification for his position on funding. Among the many controversial dimensions of the voice appropriation debate, Fung alleges that the most confusing feature is nothing less than the "contradictory reality of using the voice, sound, image, dance, or stories of another" since this reality can represent "sharing or exploitation, mutual

learning or silencing, collaboration or unfair gain, and, more often than not, both aspects simultaneously" (Fung 1993,21). Fung, moreover, voices some of the most pressing philosophical difficulties that must be addressed in the voice appropriation debate. First, how does one define the "Other" and where does one draw the lines around "otherness". Second, who is in a position to speak for a community, race, sex, or culture, and who has the authority to decide whether something is appropriate or not? (Fung 1993, 21). Although it is unlikely a country as diverse as Canada will ever come to a consensus on these questions, it is crucial that those concerned with the appropriation debate address the fact that the boundaries dividing "'allowable' appropriations from 'unallowable' appropriations are not always obvious" (Fung 1993, 21). With specific reference to funding in Canada, Fung concludes that:

It seems the integrity of the independent jury system is a two way street: if one should not direct jury members to incorporate appropriation as a criterion for evaluation, one should not direct them to ignore it. Literature is judged 'good' and 'interesting' on more than punctuation, sentence structure and the skilled use of adjectives (Fung 1993, 24).

Consistent with Fung's remarks on defining and evaluating voice appropriation, Canadian writer Dionne Brand contends that cultural appropriation cannot be addressed outside of a social and historical context.

According to Brand, notions of voice, representation, theme, style, and imagination have specific historical locations, and it takes rigorous examination to find these origins. What is not productive in the voice appropriation debate, Brand argues, is "liberal assumptions of universal subjectivity or downright denial of such locations" (Brand 1993, 15). In her article, Brand proceeds to define and expand the notion of cultural appropriation in terms of its ethical and dialectical implications:

[c]ultural appropriation is not a personal accusation, it is a critical category. It looks at the location of the text, and the author, in the world at given historical moments. These moments are moments of gendering, rac(ing) and classmaking, 'othering', moments rooted in colonial conquest, slavery and economic exploitation; it investigates the positionings of the author within/ without the text, and within the interaction of the text with colonial discourse, etc.; it challenges the author's anonymity, it questions the author's 'interests' in the text... (Brand 1993, 18).

In short, Brand situates and thus redefines cultural appropriation by proposing that imagery, images, representations, and the imagination are deeply rooted in an historical dialectic within which moments of alienation--abuse, if you will--are apparent. With Brand's definition, cultural appropriation itself becomes an hermeneutic category through which we investigate and interpret the relationships between texts and their authors.

iii. Publishing

In the area of Canadian publishing, the appropriation of 'voice' also includes what Susan Crean calls the "appropriation of space". "We [white writers] have most of the space--there are only so many books that get published" (Crean 1992, 29). While minority writers Evelyn Lau and Neil Bissoondath (1994) disagree that arts and literature are finite resources, Crean insists that the political answer to the appropriation problem revolves around access. She argues that two levels of access are involved here: first, programs to assist previously marginalized writers must be available and accessible; and second, publishing grants must also be available (Crean 1992, 29). Crean sees that the issue is not just one of only Aboriginal people writing about Aboriginals. Rather she believes that there should be a more equal "mixing back and forth" in terms of creative ideas and funding decisions (Crean 1992, 29). Access to publishing is even more difficult at larger Canadian publishing houses because the big publishers often prefer to publish novels by recognized authors (e.g. W.P. Kinsella) writing about Aboriginal culture, rather than publish a book by an unknown or less popular Aboriginal author. Whether this choice represents racism as some claim (Brand 1993) or simply profit-motivated decisions made by publishers remains

a function of one's personal position within the voice appropriation debate. Furthermore, those Aboriginal authors who have been widely published, such as Lee Maracle, have done so through small, independent presses or through Aboriginal and feminist presses (Young-Ing 1993, 26). In fact, Young-Ing points out that in its Fall 1992 catalogue, one of Western Canada's largest publishing houses listed only five titles about Aboriginal peoples, all of them written by non-Aboriginal authors (Young-Ing 1993, 26). No titles by Aboriginal authors were listed.

Restrictive access within the dominant culture has prompted interesting initiatives in the Aboriginal sector. In order to combat the discrimination practiced (intentionally or not) by the mainstream Canadian publishing houses, Aboriginal peoples have initiated their own publishing ventures. Two of the largest Aboriginal publishing houses in Canada are Pemmican Publications and Theytus Books, both founded in 1980 (Young-Ing 1993, 26). Pemmican Publications, a Metis publishing house in Winnipeg, is committed to publishing books depicting Metis and Native cultures in a positive manner. Theytus Books is the first publisher in Canada to establish itself under First Nations ownership and control. Theytus Books employs only Aboriginal peoples, publishes only Aboriginal authors and, as of 1993, had already published over forty titles (Young-Ing

1993, 27) .

Self-controlled publishing, then, appears to be the best solution to Aboriginal writers' lack of publishing success with the larger, non-Aboriginal publishing houses in Canada simply because it gives Aboriginal writers access to publishing. Young-Ing also believes that it fosters the growth of an Aboriginal audience and empowers Aboriginal communities through financial and administrative control. With these publishing houses, Young-Ing believes that Aboriginal writers have begun to repair some of the damage done by centuries of stereotypical images of Aboriginal people created and perpetuated by white writers and artists.

Curiously, the cultural appropriation debate has focused mainly on fiction, despite evidence that there exists an even larger problem with non-fiction. Just as Aboriginal people have been plagued for centuries by authors "appropriating", "stealing" and often distorting the stories of others, Aboriginals (and to a lesser extent African North Americans) continue to face an ever increasing number of self-appointed academic "experts" who write about them and their cultures, with little consultation with Aboriginal communities (Crean 1992, 28). In recent years there appears to have been an increase on Canadian university campuses in the number of non-Aboriginal academics

writing and teaching about Aboriginal cultures.

Young-Ing argues that while their intentions may be laudable, the problem many Aboriginal people have with these self-appointed experts is that many of these academics do not "promote the Aboriginal Voice nor do they speak for Aboriginal peoples' unique perspectives on the issues" (Young-Ing 1993, 24).

Furthermore, Young-Ing argues that "by creating a recognized school of experts, who are a relatively 'low risk' to publishers, and by saturating the market with books about Aboriginal peoples, this wave of academic writing has the effect of ultimately blocking out the Aboriginal Voice" (Young-Ing 1993, 24). This concern about appropriation in the research and academic sectors has also been attracting some attention within anthropology (Clifford 1988, 220).

The issue of access, then, cuts across several categories of cultural expression. Indeed, in one of the rare analytic articles written by a Canadian academic about the voice appropriation controversy, philosopher Thomas Hurka, over five years ago urged non-minority artists and writers to move with extreme caution and sensitivity in this contested area (Hurka 1989, 8[A]). Hurka's words are no less applicable to the realm of scholarship.

iv. Policy

Despite the high profile given to voice appropriation by the media and the angry demands from some minority artists and other commentators to stop "stealing" and to start "respecting" cultures not their own, few Canadian funding agencies have given the issue little more than passing consideration. In terms of official guidelines, recommendations, or policy statements, the Canada Council's Advisory Committee on Racial Equity (1992) was one of the first to take direct action. As already mentioned (p.42), following its own two year study of the cultural appropriation controversy, the Advisory Committee recommended that the Canada Council consider the following:

the differing needs of communities, the need for written permission in certain instances, the need to maintain respect for cultural tradition, the importance of training background for artists working in cultural traditions other than their own (Calgary Herald, 2 May, 1992).

The Canada Council however, rejected the Advisory Committee's recommendation and instead affirmed the supremacy of freedom of expression and imagination (Calgary Herald, 2 May, 1992).

Recent government committees, mandated to investigate the problems faced by contemporary Aboriginal peoples in Canada, have now begun to address the concerns Aboriginal people have about cultural

appropriation. Most significantly, the Royal Commission on Aboriginal Peoples, created in 1991, included a section entitled "Cultural issues of concern to Aboriginal peoples" in its 1992 final report. In this report, improving cultural awareness among Aboriginal peoples and non-Aboriginal peoples in Canada is a dominant theme. More pertinent to the issue at hand is the fact that the Report mentions members of a women's coalition in Winnipeg who, acting as intervenors, described research they were conducting on how a United States program to protect the interests of Aboriginal artists, by requiring "tests of authenticity", would affect Canadian Aboriginal artists. The U.S. legislation they were referring to would allow only Aboriginal artists to market their cultural artifacts (Cassidy 1992, 16). Furthermore, in British Columbia, another group of representatives urged that the Commission consider previous Aboriginal art and songs be given copyright protection in order to arrest "appropriation" by non-Aboriginal people (Cassidy 1992, 16).

In an attempt to convince the Commission of the need for increased Aboriginal involvement in the arts, Mr. Kim Bell, Founder and President of the Canadian Native Arts Foundation, called for research into the economic potential of Aboriginal cultural industries. Bell also argued for greater representation of

Aboriginal people in the arts, stating that Aboriginal peoples remain almost totally excluded from Canada's cultural industries- -the third largest industry in Canada.

In response to its 1992 report, the Royal Commission on Aboriginal Peoples published an "Integrated Research Plan" (July 1993) which includes ethical guidelines for its own funded research projects involving and/or depicting Aboriginal peoples. According to the Commission, these guidelines were developed to ensure that "in all research sponsored by the Royal Commission on Aboriginal Peoples, appropriate respect is given to the cultures, languages, knowledge and values of Aboriginal peoples, and to the standards used by Aboriginal peoples to legitimate knowledge" (Royal Commission on Aboriginal Peoples, 1993, 37). The guidelines refer to the majority of past research concerning Aboriginals as being carried out "outside" of the Aboriginal community, by non-Aboriginals. Specifically, the guidelines state that "Aboriginal peoples have had almost no opportunity to correct misinformation or to challenge ethnocentric and racist interpretations" (Royal Commission on Aboriginal Peoples, 1993, 37). As a response to these injustices in the areas of research on Aboriginal peoples, the Commission's ethical guidelines direct researchers to: i) establish "authenticity" of orally

transmitted knowledge by applying "the means of validating knowledge" in the particular traditions under study; ii) obtain "informed consent" from all persons and groups participating in the research; iii) enable community representatives to participate in the "planning, execution and evaluation of research results" (Royal Commission on Aboriginal Peoples, 1993, 38, 39).

A few years prior to the Royal Commission on Aboriginal Peoples, the province of Quebec had already conducted its own cultural inquiry into the status of Aboriginal people in the arts. In 1990, The Government of Quebec released its Departmental Policy on Aboriginal Cultural Development. The Quebec policy stipulates four very broad principal directives:

- a) to encourage Aboriginal people to take greater charge of their own cultural development;
- b) to actively support Aboriginal people in preserving and promoting their heritage;
- c) to encourage each Aboriginal nation's affirmation of its cultural identity in the fields of arts and literature;
- d) to promote creativity among Aboriginal artists, dissemination of their works and recognition of their professional status (Province of Quebec, Departmental Policy on Aboriginal Peoples 1990, 192).

In order to support these general orientations, the ministry outlined a number of specific orientations. To promote accessibility to funding, these more specific

directives included inviting Aboriginal people to sit on selection committees reviewing projects submitted by their communities; introducing provisions into financial assistance programs which would ensure respect for Aboriginal culture and its characteristics; and translating all ministry policies and programs into the appropriate Aboriginal languages (Province of Quebec, Departmental Policy on Aboriginal Peoples 1990, 192) .

Apart from these few and encouraging instances of government bodies and committees interested in the issue of cultural appropriation, government involvement is at best incipient. Proscriptions against cultural appropriation have never materialized as policy in any artistic funding agency and are not likely to do so. According to Richard Fung (1993) there are a number of reasons funding agencies in Canada have either avoided making direct statements on the issue of appropriation or have rejected the kinds of recommendations proposed to them by other committees as did the Canada Council with the Advisory Committee's recommendations. Fung believes that besides the fear of public outrage that would likely result from a proscription against cultural appropriation, the most significant reason for the absence of such interventions in policy is the fact that Aboriginal and other non-white artists are "rarely given the opportunity

to articulate such demands" (Fung 1993, 24). Fung contends that

[w]hen First Nations artists have said 'don't take our stories; don't steal our images,' their objects of address have been other artists not funding agencies. Their proscriptions against appropriation have been made in a moral and ethical, not a regulatory arena. Moral and ethical directives don't easily translate into bureaucratic language of guidelines and forms (Fung 1993, 24).

It appears, too, that there is some resistance to government intervention within the minority cultures themselves. Neil Bissoondath, a Montreal writer and novelist who has become one of the most prominent and outspoken critics of proscriptions against cultural appropriation, links the appropriation debate with a larger problem in Canada: official multiculturalism. Bissoondath, born in Trinidad and emigrating to Canada at eighteen, and other opponents of multiculturalism, argue that such a policy has essentially robbed the country of common values and heritage (Makin 1994, 4[A]). Bissoondath alleges that ever since 1971, when Canada's multicultural policy evolved under Prime Minister Trudeau, people have been "encouraged to hide behind ethnic walls" (Makin 1994, A4). Furthermore, Bissoondath is opposed to federal grants being given to ethnic communities to support their cultural traditions and languages. According to Bissoondath, any group, determined enough, can finance its own lobbying and cultural events, as did immigrants in

the past (e.g. Italians, Germans), without such financial assistance. More specifically, in his recent book Selling Illusions (1994), Bissoondath alleges that

[m]ulticulturalism, with all its festivals and its celebrations, has done--and can do--nothing to foster a factual and clear-minded vision of our neighbours. Depending on stereotype, ensuring that ethnic groups will preserve their distinctiveness in a gentle and insidious form of cultural apartheid, multiculturalism has done little more than lead an already divided country down the path to further social divisiveness (Bissoondath 1994, 90).

Bissoondath is one of only a few non-white spokespersons in the cultural appropriation debate who has openly expressed opposition to proscriptions against cultural appropriation-- constraints that might result in the harnessing of the free imagination. In his own works, Bissoondath has created narratives from the perspectives of women, men, adolescents, adults, African North Americans, whites, and Asians. In addition, his stories are set in a wide range of locations including Canada, the Caribbean, Central America, and Japan (Garrod 1986, 35). Bissoondath has been no less vocal in the public media, claiming that he and all writers have the right to write in the voice of cultures and genders not their own; and that the ability to take on different characters and speak in different "voices" is part of the creative process of writing. As to those who argue that voice

appropriation represents a form of racism and theft, Bissoondath responds by maintaining that "[t]heir message is one of negation and division, seeking to erect 'multicultural', apartheid-like walls around the ghettos of ethnic and cultural communities. They are loud-but this does not mean they are right" (Bissoondath 1994, 185).

* * *

Canada, with its official policy of multiculturalism and structures dedicated thereto, provides a lively context within which to situate, define and understand voice appropriation. Very quickly it becomes apparent that voice appropriation must not be perceived or approached simplistically in terms of censorship or the right to unfettered communication. Rather it needs to be investigated in a more comprehensive and historical context which does justice both to its organizational and procedural features as well as to its philosophical complexity. Indeed, as Fung argues, cultural appropriation is so complex as to encompass an unavoidable contradiction; and, at the same time, it is attended by profound questions about boundaries, authority and appropriateness. This too is why Brand situates "cultural appropriation"

as something even more than an injustice rooted in historical dialectic but also as an hermeneutic category through which we investigate and interpret the relationships between certain kinds of texts and their authors.

In Canada, some of these relationships express themselves less abstractly as issues of access, broadly conceived, and in such things as funding procedures and policies. Other perhaps more apparent tangible realizations of these relationships between cultural texts and their authors are such developments as the resolutions of committee structures and arts councils, publishing guidelines and policies, publishing houses and their publication records. The most current determinations to spell out relationships between cultural texts and their authors are the guidelines issued by the Royal Commission on Aboriginal Peoples and the counter-arguments of Neil Bissoondath directed against special treatment for minority writers and artists. Ironically, this pairing at approximately the same time, of the most recent high-profile statements in the debate reflects the inherent contradiction already diagnosed by Fung. Even so, the work of defining voice appropriation requires further understanding of both its rhetorical and ethical dimensions.

CHAPTER 3

METHODS TO STUDY VOICE APPROPRIATION

I. Introduction

This thesis combines historical, rhetorical and ethical approaches in examining cultural texts and their use. Chapter two has already used an historical approach in identifying the problem. The principal approaches and types of theories employed in the remainder of this thesis include rhetorical theory, argumentation theory, and ethical evaluation. Furthermore, the method of rhetorical analysis used in this thesis begins by situating the production of cultural texts (of minorities) within the broader human enterprise of narrativity. Narratives, in the form of parables, myths, and legends often serve as vehicles of moral instruction for a group of people--a culture. Because stories often define and instruct a culture (about its history and norms), those who create and relay such stories, the story-tellers, occupy an unique power position within communities. Thus, if the story-tellers or creators of cultural texts are from a cultural group other than the one they portray, many commentators consider the power to define the host

culture as being foreign, oppressive and distorting. Canadian writer Janisse Browning (1991) argues for African-Canadians that "[a]ny representation of ourselves and our cultural experiences done by an outsider would be from a comparatively superficial perspective" (Browning 1991, 33).

Based on the theory-categories of rhetorical theory and ethics, the principal investigative steps taken in the remainder of this thesis are as follows:

- i) rhetorical analysis comprising the following: general theoretical remarks upon the instructive, epistemological and ethical value of (a) rhetoric (b) narrativity (c) argumentation including the analysis of language use. There is special emphasis on argumentation theory, since a major goal in this thesis is to disclose the types of arguments that have surfaced in the voice appropriation debate.
- ii) a three-step ethical evaluation, culminating in the application of, some contemporary feminist ethical theory, as the appropriate underpinning for an evaluation of appropriation discourse.

In the application of rhetorical theory and ethical evaluation to the study of cultural texts and their use, the various claims and counter-claims that have surfaced in the voice appropriation debate, as depicted in Canadian journals and newspapers, will serve as the materials for this study. While ethical analysis is normally distinguished from rhetorical study, it is worth pointing out that both narrative accounts and many of the voice appropriation arguments are intimately connected with ethical properties. Indeed,

narratives are a conventional form of ethical instruction. Accordingly, without ethical review, an examination of the voice appropriation phenomenon would remain incomplete.

II. THE THREE-FOLD STAGES OF RHETORICAL INQUIRY

i. RHETORICAL THEORY

As is evident from its 2500-year history, rhetorical theory undertakes to identify the use of language forms with special attention to their persuasive appeal. Rhetorical analysis, as author Gerard Hauser (1986) points out, examines the "dynamics that occur within the boundaries of a message and the options available to performers (rhetors) for managing these dynamics in desired ways" (Hauser 1986, 2). Authors Bernard Brock and Robert Scott (1980) define rhetoric as "the human effort to induce cooperation through the use of symbols" (Brock and Scott 1980, 16). In short, rhetoric can be considered both a specific form of communication and communication in general since nearly all communication has elements of persuasion and technique.

Rhetoric, then, is the art or expression of speech

or discourse. It is not a thing by itself, but instead a skill, art, or system of communicating through the spoken or written word. The system or art of rhetoric comprises the elements of composition, organization, style, and persuasion. According to Webster's Dictionary (1986), rhetoric includes four broad areas: i) the study of principles and rules of composition as formulated by ancient critics (Aristotle); ii) the art or practice of writing or speaking as a means of communication or persuasion; iii) the skill or effective use of speech--eloquence of language; iv) verbal communication or discourse--speech itself.

In Communication and Knowledge (1986), authors Richard Cherwitz and James Hikins define rhetoric more broadly than anyone yet as "description of reality through language" (Cherwitz and Hikins 1986, 67). This definition mirrors the ubiquitous role that rhetoric plays in human thought and inquiry, and includes rhetoric exercised in both oral and written mediums. These authors also believe that rhetoric, along with "persuasive potential, is an integral part of nearly all verbal activity" since a person engages in rhetoric each time he/ she implies or asserts reality is as he/ she says it is (Cherwitz and Hikins 1986, 64). In bracketing the persuasion effect, then, Cherwitz and Hikins accord rhetoric an enormous scope. What is most striking is their claim that rhetoric

is indispensable to the process of knowledge and self-knowledge. Rhetorical discourse describes reality through language and in doing so makes relations conspicuous to selves. "We do not argue that rhetoric is a 'way' of knowing distinct from other ways...Rather, we contend that all ways of knowing are inherently rhetorical" (Cherwitz and Hikins 1986, 92). Cherwitz and Hikins represent the culmination of an accelerating tendency in recent years among rhetoricians to bring together the study of communication and epistemology. This ambitious synthesis, then, provides a rhetorical theory base or background to the work of appreciating cultural narratives as a key to understanding ourselves and the human condition.

ii. NARRATIVITY

After a broad overview of the relevance of rhetorical theory to voice appropriation, the second stage of rhetorical analysis moves on to examine the production of cultural texts (of minorities) within the distinctively human enterprise of narrativity (engaging in narrative discourse). In the Autumn 1985 edition of the Journal of Communication, a series of articles by various authors were compiled under the general title of "Homo Narrans: Story-Telling in Mass

Culture and Everyday Life". The articles signal a renewed interest in narrativity already evident in the early 1980s. In his introduction, editor George Gerbner underscores the importance of stories and story-telling in human lives when he recalls Plato's remark that those who tell the stories also rule society (Gerbner 1985, 73).

In line with Gerbner, Walter Fisher (1987) writes of the critical function of stories and he quotes ethicist Alasdair MacIntyre to underscore his point: "[m]an is in his actions and practices, as well as in his fictions, essentially a storytelling animal" (Fisher 1987, 58). As storytelling animals, we perceive, understand, and explain our experiences (our lives) in terms of narrative logic (beginning, middle, end). Fisher contends that narration is a distinctively human enterprise and includes the "symbolic actions--words and/or deeds--that have sequence and meaning for those who live, create, or interpret them" (Fisher 1987, 58). In investigating what he calls the "narrative paradigm", Fisher is concerned with the role stories play in human discourse and how stories themselves operate as a paradigmatic model of human communication. He maintains that the essential postulates of the narrative paradigm include the acceptance that humans are storytellers and that rationality itself is determined by the nature of

persons as narrative beings. The nature of persons as narrative beings includes human beings' inherent awareness of narrative probability, what constitutes a story, their ability to test narrative fidelity and to compare the stories they "experience" with the stories they "know to be true in their lives" (Fisher 1985, 75). Storytellers are the "experts" and their audiences function as active participants in the formation of meaning in the story, rather than as detached observers/ listeners (McGee and Nelson 1985, 143). Many social scientists now agree that the social reality of human beings is constructed and experienced largely through various modes of story-telling (Gerbner 1985, 73). According to Ernest Bormann (1985), socially shared narratives or shared "fantasies" provide group members with "comprehensible forms for explaining their past and thinking about their future-a basis for communication and group consciousness" (Bormann 1985, 128).

Thus, shared narratives function as the foundational core of meaning and interpretation within communities. In terms of the voice appropriation controversy, narrativity is both retrospective and prospective. It is retrospective in as much as it helps us to see why so much feeling has associated itself with voice appropriation. It is prospective in that it provides an additional rhetorical base or

platform on which to build the further rhetorical structure of argumentation and ethical evaluation. Human beings, Fisher argues, engage in a constant process of "recounting" and "accounting for". Recounting is largely descriptive and enumerative, taking the form of histories, biographies, or autobiographies. Accounting for, on the other hand, supplies the interpretive component, including theoretical explanations and/or arguments. Recounting can be expressed in various forms, including poetry, dramas, and novels. Fisher maintains that regardless of the form they may take, recounting and accounting for add up to the "stories we tell ourselves and each other to establish a meaningful life-world" (Fisher 1987, 62). The enterprise of story-telling and narration is one with a long history: Fisher declares that "[h]istory records no community, uncivilized or civilized, without key storymakers/ storytellers, whether sanctioned by God, a 'gift', heritage, power, intelligence, or election" (Fisher 1987, 67).

Narrativity has immediate relevance for voice appropriation. It is precisely "how" these key storytellers in modern society have been sanctioned (or believe themselves to be sanctioned) which is in dispute in the voice appropriation debate. The critical and still unanswered question of who has the "right" to tell the stories of others remains at the core of

many of the arguments surfacing in the voice appropriation debate. According to professor Gail Guthrie Valaskakis (1993) of Concordia University, the voice appropriation debate is indicative of the fact that we, as a society, remain "caught in the nexus between competing narratives, between what some call the narrative and the counter-narrative, in trying to find ways to express and act upon the cultural and political reality of difference" (Valaskakis 1993, 285). Valaskakis contends that while stories have always been recognized as "windows on who we are, what we experience, and how we understand and enact ourselves and others", few seem to understand that stories are much more than "a window on identity" (Valaskakis 1993, 285). Stories, that is, not only reflect who we are, but they also, in part, define who we are. Valaskakis argues that for First Nations people in particular, stories represent crucial teachings, prayers and songs, critical to Aboriginal ways of life and thinking. Valaskakis contends, it is precisely the spiritual power of narrative, as "teaching, prayer, song experienced through collective heritage which makes stories so valued and so important in Indian country" (Valaskakis 1993, 286). Stories instruct their listeners about what it means to be Aboriginal from generation to generation. Furthermore, Valaskakis, along with Stuart Hall (1985, 1986), envisions

representations and cultural narratives as central sites of cultural struggle (Valaskakis 1993, 286).

Other commentators on the appropriation debate have also focused on the importance of narratives. Marwan Hassan (1993), a Nlaka pamux woman, for example, speaks of the "appropriation of narratives". Hassan alleges that the "master narratives" in today's society are predominately male, European, white and heterosexual (Hassan 1993, 29). According to Hassan, although these narratives remain in an abstract form, depicted in the power relations that exist in society, people are nevertheless "transported" and "contained" by such narratives (Hassan 1993, 30). Hassan cautions us that numerical superiority, whether sanctioned by duration or census figures, does not necessarily indicate a superior narrative.

With specific reference to the appropriation of First Nations' narratives, Ardith Walkem (1993) argues that not only is story-telling a constant creative process that places us in the world and keeps us connected, but also that when someone else tells your stories and speaks with your voice, your voice is "silenced" (Walkem 1993, 31). Walkem declares that "[u]nderstanding the power of story within First Nations culture means also recognizing that simple changes [in re-telling], far from being a simple stretch of the imagination represent a political act of

interference" (Walkem 1993, 32). Walkem warns that due to the critical role stories/ narratives play in human lives, the appropriation of other people's narratives (especially those of First Nations people) necessarily involves issues of identity and authenticity. For example, Walkem argues, in the minds of many "Euroamericans" the image of First Nations people has been "frozen in history", with films and books depicting their people often solely in terms of traditional dress and festivals. This makes it possible for people to identify only with images of First Nations people from the past, without reflecting on the social impact these images have on the present (Walkem 1993, 32).

iii. ARGUMENTATION THEORY

Although argumentation can be considered a sub-category of the larger topic of rhetoric, argumentation is given its own section in this chapter in order to further explain and describe its role within rhetorical analysis. Consistent with this very broad conception of rhetoric-as-epistemic put forth by authors Cherwitz and Hikins, authors Van Eemeren, R. Grootendorst, and T. Kruiger (1984) situate argumentation as an important part of everyday,

personal, human experience and communication (Van Eemeren, Grootendorst, and Kruiger 1984, 1). According to these authors, all people advance arguments in defense of assertions and/or actions. Argumentation, then, can be defined as:

...a social, intellectual, verbal activity serving to justify or refute an opinion, consisting of a constellation of statements and directed towards obtaining the approbation of an audience (Van Eemeren, Grootendorst, and Kruiger 1984, 7).

Joseph Wenzel in "Rhetoric and Argumentation: An Introduction" (1993) reinforces the instructive role of argument analysis. He claims that argumentation at its best is "a process whereby problems are brought to attention and analyzed, interested parties become more knowledgeable and more critical about relevant facts and values, and solutions are hammered out on the anvil of controversy" (Wenzel 1993, 1). Unlike logic, which is mainly concerned with standards of validity, Wenzel adds that rhetoric is especially concerned with the "verbal artistry used to create arguments" (Wenzel 1990, 12). Rhetorical theory and argumentation, then, are concerned with particular forms of language usage. Argumentation, then, based on Webster's Dictionary (1986), is essentially the act of forming reasons, making inductions, drawing conclusions and applying them to a discussion. Accordingly, special attention has to be directed to the language employed in the voice appropriation

controversy which uses terms such as "theft" (Blackley 1993, Hurka 1989), "stealing" (Dawes 1993, Keeshig-Tobias 1990), "robbery" (Dawes 1993), and "exploitation" (Fung 1993).

Since it is also a main goal of this thesis to examine the arguments that have surfaced in the voice appropriation debate, aspects of rhetorical theory and argumentation theory are utilized in order to develop and identify a taxonomy of the main arguments in the debate. Although the actual analysis of the various arguments and their positioning within a taxonomy will be conducted in Chapter Four, it is worth adding a preliminary statement here about this process with special emphasis upon the values embedded within argument discourse. According to Walker and Sillars (1990), Perelman's Theory of Values, which emphasizes the centrality of values to public discourse, defines the purpose of argument in public argument as eliciting or increasing the "adherence of the members of the audience to theses that are presented for their consent" (Perelman 1982, 9). Since the majority of claims and counter-claims made in the voice appropriation debate have been publicized in the print and broadcast media, and since a likely goal of those who are putting forth arguments in the debate is to elicit or increase the adherence of the members of the audience to the theses they present, the voice appropriation controversy can

also be considered a public argument in Perelam's terms.

In analyzing and categorizing the specific arguments in the voice appropriation debate, arguments are arranged in a taxonomy based on common denominators. Arguments are situated in the same 'category' if, for example, the arguments are based on similar values (e.g. freedom, solidarity); if arguments employ similar metaphors, analogies (e.g. property); if arguments draw upon common examples or justifications; and/or if arguments rely on similar lines of reasoning and logic (e.g. argument from consequences). Theoretical support for the method of classification of arguments into "types" as developed and utilized in this thesis, can be found in two sources: Claudia Mills's recent typology and Richard Weaver's interpretation and application of rhetorical theory.

Since the ability to situate an argument within a broader taxonomy also increases our understanding of that argument, this thesis applies and develops a primary framework put forth by Claudia Mills in her article, "Multiculturalism and Cultural Authenticity" (1994). In this piece, Mills proposes an analysis of what she calls, the "authenticity thesis", a thesis that "maintains that individuals representing the experiences of group A should (generally or even always) be members of group A" (Mills 1993, 1). By using Mills' primary classification system as a template or framework

on which to build, and by developing additional categories of arguments, this thesis attempts to increase understanding of the complex voice appropriation controversy.

Writing mostly in the 1950s and 1960s, Weaver provides a class which brings us more closely in line with the ethical mode of analysis. Weaver believed that rhetoric expressed the underlying values of its users (Foss, Foss, and Trapp 1985, 58). Two works which best reflect Weaver's views on rhetoric include: The Ethics of Rhetoric (1953) and Language is Sermonic (1970). Weaver proposes that there are types of arguments which reveal much about the person using them. There is a connection, that is, between the source of argument and the philosophical position of the rhetor. To Weaver, arguments are a means for interpreting reality and the goal of rhetoric is to persuade others to see the world as the rhetor sees it. More specific to the present thesis, Weaver claims that these "sources" or "types" of arguments can be "ranked" or "ordered" according to their ethical worth (Foss, Foss, and Trapp 1985, 59). Weaver also believed that from an ethical point of view, certain ways of arguing are better (more convincing, effective) than others. Weaver identified four broad types of arguments: Genus and Definition; Similitude; Cause and Effect; and Authority and Testimony. These four

types of arguments are ranked by Weaver in terms of their ethical value, worth, and effectiveness. Arguments by Genus and Definition rely on the presupposition that there exists classes which are "determinate" and therefore "predictable" (Foss, Foss, and Trapp 1985, 59). In arguments by Genus, the rhetor refers to the subject of debate and its class. The class is already established and accepted in the audience's mind and thus no definition of the class is needed. Argument by Definition is similar to argument by genus except that the class must be established anew or defined in the course of the argument. Weaver judged Arguments by Genus and Definition to be more ethical types of arguments than the others because they involve interpreting a subject by defining its fundamental and unchanging (or generally agreed upon) properties (Foss, Foss, and Trapp 1985, 59). Argument by Similitude interprets the subject of debate by relating it, in terms of similarity or dissimilarity, to other things that the audience is more familiar with. This type of argument includes analogy, metaphor, figuration, comparison, and contrast. Argument by Cause and Effect attempts to predict the results of particular actions in terms of cause and effect. This type of argument, according to Weaver, is less ethical and convincing than the previous types because it allows the present circumstances to over-ride

all other circumstances (Foss, Foss, and Trapp 1985, 61). Lastly, according to Weaver, is Argument by Authority and Testimony. This argument type is often considered least ethical because, unlike the first three argument types, it relies on observer's status or expertise when evaluating statements or claims, instead of relying on direct observation and concrete evidence. The strength of such arguments is determined by the competence and integrity of the witness or expert (Foss, Foss, and Trapp 1985, 62). Again, for the purposes of this thesis, the value of Weaver's theory lies less in these specific argument types and more in his general method of classifying arguments.

In sum, Weaver's rhetorical theory of argumentation has at least three specific applications for the present thesis. First, Weaver's classification of arguments supports the general method of classifying arguments as an approach to understanding this area of discourse. Second, Weaver's evaluation of certain arguments types as more or less ethical (or convincing) than others assists us in understanding how some voice appropriation arguments are really less convincing than they may appear at first glance. Thirdly, Weaver's taxonomy provides yet another bridge between the rhetorical and ethical dimensions of the voice appropriation debate.

iv. ETHICAL THEORY

The section on narrativity underscores the profound moral and spiritual dimensions of cultural discourse. The penultimate chapter of this thesis will examine the ethical and social dimension of the voice appropriation debate, culminating in the application of a feminist moral theory. Since the issue of voice appropriation, when framed as it is in terms of "theft" and speech "freedom", is unavoidably an ethical issue; and since, as Aristotle (Johnstone 1980, 18) and others have indicated, rhetorical practices (including narrativity) are inherently of ethical significance, it follows that a discussion of voice appropriation would be incomplete, certainly fragmentary, without the application of suitable ethical theory. The intimate relationship between rhetorical practices and ethics, for example, is acknowledged most recently by Ann Gill in Rhetoric and Human Understanding (1994). Gill argues that:

Rhetoric, whether seen as the art of persuasion or the means whereby knowledge is created, implies an ethic, for rhetorical choices have results that can affect other human beings in profound ways (Gill 1994, 52).

Accordingly, Chapter Five will supply the theoretical underpinning for an ethical evaluation of the voice appropriation debate. The argument unfolds

in three stages. The first stage employs access theory as it pertains to the right to communicate and access to communication mediums. This level of analysis offers a more juridical tone since it refers to an individual's rights and freedoms. However, since the freedom to communicate, communication rights and access issues apply generally to individuals in both minority and dominant cultures, the argument from "right to communicate" is too indeterminate. The second stage of ethical analysis uses John Rawls's "veil of ignorance" theory, a justice strategy from which one can evaluate voice appropriation. At this stage, the ethical distinction between the minority and dominant culture claims becomes more focused. Rawls's decision-making strategy (which involves the imaginary shedding of all social distinctions within a context of negotiation) tends to favour the weaker party in a dispute by requiring decision makers to evaluate the situation from a 'blind' vantage point (without knowledge of future social position and individual strength within that situation). Lastly, offering a more nurturing tone, an "ethic of care", as proposed initially by Carol Gilligan (1982) and Nel Noddings (1984) will be explored in terms of its contribution and place in the voice appropriation debate. An "ethic of care" is an empathic approach to morality, an orientation to moral problems wherein persons see

themselves in relation to, and make moral decisions based on, their "connectedness" to others. Instead of considering only one's own position, rights and role, decision makers experience themselves as part of a network of relationships (Noddings 1984, 43). This approach is especially appropriate in evaluating the position of vulnerable communities who claim to be wounded and weakened by cultural theft.

Individually, any one of these three ethical approaches might seem inadequate to address the complex issues surrounding voice appropriation. In combination, however, these strategies offer a comprehensive and compelling methodological approach from which we can better evaluate the voice appropriation controversy.

CHAPTER 4

A RHETORICAL ANALYSIS OF VOICE APPROPRIATION

I. INTRODUCTION

The voice appropriation controversy is frequently reduced to a simplistic contest between voice appropriation complaintants and free-speech defenders in which points are scored but no clear winner emerges--as long as it is viewed abstractly as a contest between competing rights. In point of fact, voice appropriation discourse is a skein of different rhetorical thrusts and counter-thrusts in which a combination of historical, social and qualitative considerations suggest that minority complaints have a stronger moral case.

This chapter analyzes and arranges the various claims and counter-claims made by artists, academics, and journalists over the past few years in order to construct a typology of arguments in the voice appropriation controversy. Elements of rhetorical theory, argumentation, and ethical evaluation figure into this typology as a combined method of analysis of voice appropriation arguments. Indeed, this classification of arguments by "types" is a crucial step in achieving clarity and understanding about the discourse involved and its ethical dimension.

There appear to be 17 specific forms of arguments

after reviewing the debate as depicted in Canadian academic journals, magazines and newspapers over the past five years. These 17 argument types, in turn, can be grouped into three principal classes. While arguments are identified in terms of their rhetorical type and structure in this chapter, these arguments will also be assessed with an eye to their relative strengths and weaknesses. Furthermore, this chapter will also attend to the way language is used in certain kinds of appropriation arguments. While the arguments and principal classes identified in this chapter do not necessarily represent an exhaustive account of the voice appropriation controversy, they certainly come close to that in that they represent the most common and recurrent themes in the debate and their relative frequency.

II. CLASSIFICATION IN CLAUDIA MILLS'S "AUTHENTICITY THESIS"

In her 1994 article, "Multiculturalism and Cultural Authenticity", Claudia Mills records four versions of what she calls the "authenticity thesis"--the thesis that "maintains that individuals representing the experiences of group A should (generally or even always) be members of group A" (Mills 1994, 1). Mills, a

philosopher, is the first and, until 1995, the only person to examine and classify the arguments underlying voice appropriation. Her schema is worthy of our attention both for its originality and for the quality of its analysis.

Mills claims there are essentially four arguments in the "authenticity thesis." The first of these, the "Argument from Opportunity", asserts that where a member of group B is selected for (or chooses) a job discussing or representing group A's experiences, some A group member is simultaneously rejected for the position in question. Thus the argument focuses on the loss of employment opportunities for group A members. In the narrow version of this argument, Mills believes a member of a "victim group" (e.g. Blacks, Aborigines) must be the one violated, for they are the ones who have suffered limited opportunities in the past or elsewhere. In the broader version of this argument, group A members could be members from any group (e.g. women, seniors), regardless of their history or status, and not necessarily one that is victimized. Skill, ability, and talent do not appear to factor into this argument type.

A second and related claim in the authenticity thesis is what Mills calls the "Argument from Ownership." Here, the experiences and cultural artifacts of group A are considered in some way to

be the 'property' of that group. Therefore, outsiders who attempt to represent the experiences of group A are guilty of a type of "plagiarism, of profiting from stories that are not one's own" (Mills 1994, 3).¹⁰ According to Mills, there are two problems with this argument. One concerns the concept of ownership itself: It is questionable whether broad intangibles such as spirituality, culture,¹¹ and themes can be 'owned' by anyone. If they can be owned, in what sense of ownership? In reference to this concern, Mills claims a distinction can be made between sharing and trafficking.¹² Unfortunately, she offers no definition of these terms, nor does she elaborate on their distinctiveness. The other difficulty is that this argument seems to carry much less weight if outsiders represent the group respectfully and conscientiously rather than merely opportunistically (Mills 1994, 3). Latent in this argument is the concern that one's stories and experiences will be misrepresented or distorted by the outsider.

This latter concern graduates into Mills's third statement of the authenticity thesis: the "Argument from Accuracy." Here the emphasis is epistemic, since this argument asserts that representations of group A will be the most accurate when they are produced by members of group A. Mills is at pains to point out that the argument does not claim that group A

members are the only ones who can represent group A experiences, but rather that group A portrayals will be more authentic and accurate than those of outsiders. A possible weakness with this argument, according to Mills, is that sometimes group A members fail to see something about themselves that outsiders can easily recognize.

The final claim in the authenticity thesis, the "Argument from Solidarity", proposes that group A audience members have a need for materials about their own culture, made by people from the same culture; and that such representations foster a sense of community among group A. According to Mills, the problem with this argument is that group solidarity is usually most important for victim groups, and thus the argument would only apply in certain circumstances (Mills 1994, 4). It may not apply, for example, in the case of groups who have not been victimized (e.g. recent Irish emigres).

At first glance, Mills's typology is remarkable for its originality and for the quality of its analysis and assessment of some of the most common arguments depicted in the voice appropriation debate. However, our literature review indicates that her account now appears fragmentary and incomplete --depicting only some of the anti-appropriation arguments. This becomes more evident in the Canadian context. Thus, while

Mills's typology is useful as a starting point in this thesis, its principal limitation is that it reflects only minority group arguments. This thesis, however, undertakes a more comprehensive analysis of voice appropriation discourse by also attending to arguments used against the claims typically presented by minority groups. Thus, in addition to Mills's four arguments, this chapter discloses 13 more arguments common in the voice appropriation debate. The resultant classification scheme or typology offered in this chapter situates some 17 arguments within three broad divisions or categories within which ethical concepts dominate.

III. MOVING BEYOND MILLS'S SCHEMA

i. Arguments from Epistemic Quality and Epistemic Authority

The 17 arguments fall into three broad genres or groupings: arguments stressing epistemic qualities; arguments with an ethical base; and meta-arguments. There is also a fourth, more specialized genre of argument (p.127) which has emerged more explicitly from this writer's discussions with her committee members. The arguments in the first of these groupings assert that certain people or groups possess a special

quality or authority that certifies them to be the designated 'knowers' in a particular subject area. Arguments contained in this category claim that 'we', in group A, are the ones (or, sometimes, the only ones) who 'know' and can 'know' about group A experiences. These epistemically phrased arguments include: Claudia Mills's Argument from Accuracy and three additional types: the Argument from Cultural Authority, the Argument from Knowledge, and the Argument from Narrative Creativity. Since this last argument type rests upon the mentalistic concepts of creativity and imagination it lends itself to inclusion in the epistemic category.

a. Argument from Accuracy

(Brand 1993; Browning 1991; Dawes 1993; Freeman vol. 14/3; Fung 1993; Groen 1992; Hurka 1989; Lutz 1993; Maclear 1993; Mays 1994; Ross 1994; Shields 1990; Taylor 1981; Valaskakis 1993; Walkem 1993; Young-Ing 1994).

Claudia Mills's Argument from Accuracy, which asserts that being a member of a particular group is an "epistemological requirement for knowledge" about that group (Mills 1994, 4), is probably the most popular argument invoked in the voice appropriation debate. Though this version of the argument might appear to be a priori, Mills argues that it is not. It is not

a normative one but rather an empirical argument. The Argument from Accuracy, that is, does not necessarily claim that only members of group A have the right to depict group A; it simply claims that representations done by group A members about group A experiences will tend to be more accurate than those done by group B. It assumes that direct experience is related to accurate portrayals. The argument also assumes accuracy of the representation can be measured empirically (by observation or experiment). At its simplest level, Mills argues that this argument gains support through common-sense appeals to the need for firsthand experience of one's subject. Basically, the Argument from Accuracy claims that "it takes one to know one" (Mills 1994, 4). In addition to its common-sense appeal, this argument is flexible in that it can be applied to different kinds of appropriation because it does not require what Mills calls a "victim group" (a group of people who have been disadvantaged or neglected in the past or at present). Thus, according to Mills, Argument from Accuracy can be invoked by both dominant and victim groups since the argument claims only that insiders' knowledge is best and usually most accurate.

It is worth noting that some commentators (Browning 1991) would disagree with Mills's claim that this argument can be used by both victim groups and dominant

groups. They argue more restrictively and exclusively that victim groups have suffered experiences in ways that the dominant group is incapable of truly understanding since the latter have not directly experienced such events (Browning 1991, 33). As reflected in the writings of Browning, this stronger version makes group membership a necessary condition of accurate cultural representations.

b. Argument from Cultural Authority

(Brand 1993; Browning 1991; Freeman 1992; Hill 1992; Maart 1993; Walkem 1993; Young-Ing 1994).

Argument from Cultural Authority begins with the point that because of status, position, and/ or opportunity, a few members of group B might be considered 'experts' on the cultures (experiences) of group A. Furthermore, because the public perceives these people as 'experts' or 'authorities' on the subject, even when members of group A produce their own accounts, group A members will not receive due attention or recognition. The contested issue then becomes how we decide who is the 'authority' on a particular subject and who ought to be able to represent that subject. According to commentator Janisse Browning, this argument is intimately connected to

the issue of "culturally defined self-representation" or self-determination (Browning 1991, 34). Speaking for Black women, Browning argues that

[t]hose who are unfamiliar with our pain and the nature of our racially- and culturally-influenced ways of seeing and experiencing life should tend their own gardens before they jump into hoeing ours. They might be cultivating weeds instead of flowers without even knowing it" (Browning 1991, 35).

Similarly, commentator Richard Hill (1992), a Cree, argues that his anger against the act of appropriation results not from the fact that the images created by outsiders are often racist or mis-representative, but rather because these images, developed by outside 'experts' seem to "dominate discourse and become the central notions about us" (Hill 1992, 13). Hill also believes that "one reason many First Nations peoples have refused to be identified as 'Indian' artists is because 'Indian art' has previously been defined almost entirely by White writers of art theory and history" (Hill 1992, 22). In short, the authority to define (i.e. to know) one's self and culture is not really sharable: It belongs to a (minority) culture's own artists and spokespersons--or ought to. Membership is the mother of both accuracy and authority.

c. Argument from Alternate Knowledge

(Atwood 1990; Cameron 1990; Enright 1992; Giagrande 1990; Greer 1992; Hoy 1993; Paris 1992; Shields 1990).

This argument type favours appropriation since it asserts that there are more ways of knowing than by direct, firsthand experience. Whereas the Argument from Accuracy (both weaker and inclusive forms) and the Argument from Authority make cultural immersion a privileged form of knowledge, there is a class of competing arguments which appeals to alternate knowledge. In fact, Anne Cameron in Language In Her Eye (1990) argues that as long as one makes an honest attempt to find out what it is like as the "Other", one does not need direct, personal experience in order to know. Furthermore, writer Carol Shields claims that we want and need the stories of others (Shields 1990, 257). Shields and other writers advocate that there are many ways to know and experience life, and that a good writer will always find a new way to approach the subject. According to writer Robert Enright (1992), for example, it is the imagination that gives people insight into events not directly experienced.

Thus, the Argument from Alternate Knowledge supports or can be used to support the act of appropriating the voice of another based on the belief

that there is no single, 'authentic' way to see the world: There are multiple ways to experience the same phenomenon. One commentator, Varadharajan (1991), argues that there has been a "false collapsing of epistemology and appropriation" in the ensuing voice appropriation debate, and that "to know is not always to violate" (Varadharajan 1991). Knowing, or the desire to know about the experiences of others can be healthy and genuine. Finally, with some sarcasm, commentator Erna Paris (1992) sums up this more liberal approach by dismissing the concerns over authenticity of voice "as though truthfulness of vision were the unique prerogative of people with insider knowledge" (Paris 1992, 16[A]).

To summarize, the class of epistemic arguments comprises two competing ideologies: arguments for a position of special status of knowledge through cultural immersion, and arguments allowing for perfectly valid alternative knowledge or talents (e.g. imagination). Clearly, each serves as a constraint upon the other.

d. Argument from Narrative Creativity

(Bissoondath 1992; Cummings 1992; Giangrande 1990; Ross 1991; Rule 1990)).

Within the category of epistemic authority, where

knowledge or ways of knowing dominate, a final class of arguments focuses on the aesthetic and/or narrative quality in producing cultural texts. These stress mentalistic features of imagination and creativity, and generally favour or justify the appropriation side of the contest. These arguments draw attention to the point of view of the narrator in claiming that the ability to write in the voice of another is a crucial part of the creative process. Commentator Joan Thomas believes that the "imaginative act of writing is one of our best ways of transcending the barriers of age, race, class, and gender" (Thomas 1992, 36[C]). Similarly, the outspoken Neil Bissoondath argues that writing in the voice of another is an "act of discovery"--a "demystification of the other" (Bissoondath 1992, 22). Carrying the Argument from Narrative Creativity further, writer Jane Rule (1990) claims that the ability to create a range of characters is one of the "requirements" for a writer of fiction (Rule 1990, 226). Other commentators (Cummings 1992, Giangrande 1990) go so far as to link the voice appropriation controversy with the "crisis of the imagination" (Cummings 1992, 18[A]) and with "putting 'No Trespassing' signs in our psychic landscape" (Giangrande 1990, 18[A]).

In sum, a number of writers defend appropriation-style behavior as a perfectly valid form

of artistic exercise even though they may not explicitly defend appropriation itself.

ii. Ethically-Based Arguments

A noticeable portion of the appropriation debate comprises arguments phrased in the language of morality. Though not unrelated to epistemic qualities (e.g. truth, accuracy), the arguments now turn on preferred ethical states (such as freedom, equity and responsibility) or on unethical practices such as theft and racism. These kinds of arguments, because of their moral weight, carry additional persuasive force.

a. Argument from Freedom

(Bissoondath 1992; Conlogue 1993; Fulford 1993, 1994; Hurst 1992; Mays 1994; Paris 1992; Valpy 1994; Winnipeg Free Press, 13 June 1992, 6[A]; Young 1992).

This argument type is grounded in the belief that freedom of expression and/or speech is paramount, and that it tolerates little or no opposition even at the price of the others' sensitivities. It is probably the most common argument on the side of appropriation. Some commentators, such as Neil Bissoondath who supports the Argument from Freedom, link artistic freedom with

"freedom to offend" (Bissoondath 1992, 22). Those who use Argument from Freedom in the voice appropriation controversy often include powerful analogies and emotional images and language in their explanations. For example, references are often made to past instances of censorship and to overt violations of freedom of expression, such as book burning by the Nazis in the 1930s. Images of the "thought police" have also been invoked by some commentators (Young 1992, 6[B]). Canadian writer Robert Fulford entered the voice appropriation debate by arguing that freedom of expression is one of our society's most "cherished orthodoxies" (Fulford 1994, 25). From Fulford's comment and those made by others it becomes clear that Argument from Freedom gains most of its mileage from positioning itself in opposition to any restrictions upon artistic freedom, including telling artists who they may and may not depict.

b. Argument from Rights/Access

(Blackley 1993; Brand 1993; Browning 1991; Cernetig 1994; Freeman 1992; Fung 1993; Hassan 1993; Hill 1992; Philip 1990).

In the context of voice appropriation, freedom of expression (freedom to communicate, speech freedom) frequently particularizes itself in the language of

rights and access. One's freedom, either from a majority or minority perspective, expresses itself as the right to create narratives, images etc. So both sides of the voice appropriation debate use the argument from rights. Within the minority perspective, however, the right to create images and narratives is seen as meaningless unless it also entails access to media as well as to a set of conditions (e.g. funding) which empower the minority artist to exercise those rights. Accordingly, in this context the Argument from Rights/Access characterizes minority claims. Where Argument from Rights supports unrestricted expression, Argument from Rights/ Access laments the price of such unrestricted freedoms. The Argument from Rights/ Access stresses the need that minority artists have for access to media outlets, resources and even a developed sense of self. This argument type claims that the "right" to use the voice of another has been bought at the high price of "silencing of the other" (Philip 1989, 212). Furthermore, advocates of Argument from Rights/Access believe that a right is meaningless, and even dangerous, if it exists without a correlative duty. Minorities argue that access to media and publishing is crucial since access, or lack thereof, is distributed unequally throughout Canadian society. Thus, while every Canadian citizen may, in theory, have the 'right' to write/create in any voice,

in reality only privileged groups and persons can actually exercise this right. Marlene Nourbese Philip (1990), another Canadian writer, argues that without the ability to write/create in one's own voice (due to lack of resources or access), the supposed 'right' to do so is meaningless. Furthermore, Philip claims that white writers tend to focus on their right to use the voice of others, but neglect minority writers' right to have access to publishing houses and to have their work adequately acknowledged. One right without the other is "unfair" and "undemocratic" (Philip 1990, 217). Consonant with Philip's comments, both Janisse Browning and Lorretta Todd describe cultural appropriation as the "inverse of cultural autonomy", and add that cultural autonomy is necessary for liberation (Browning 1991, 31).

Argument from Rights/Access in the mouths of minority groups, then, acts as a counter-argument to Argument from Freedom. Both Argument from Freedom and Argument from Rights/Access invoke similar themes of rights, freedoms, and access, yet each argument operates at a different level. The Argument from Freedom operates at a very generalized level. The Argument from Rights/ Access, on the other hand, is grounded in the needs and empowering conditions of much smaller, vulnerable and victimized groups. One is tempted to argue that both have logical force, but

that the Argument from Rights/Access is, at least ethically, on firmer ground since it considers both rights and enabling conditions of those in a position of greater need.

A major problem with Argument from Rights/Access is that the argument overlooks commercial realities. The argument often ignores the crucial commercial factor present in nearly all art work today. The concept of access, in this argument type, is based on the assumption that there exists a finite and constant market, and that if writer B were not published, writer A would be. The arts, unlike other 'products' (gasoline, milk) cannot be viewed as a finite system of commodities. Furthermore, many artists would argue that in terms of publishing and funding, the underlying idea is more 'survival of the fittest' or the best rather, than access for all, regardless of their ability and creativity. Evelyn Lau, one of the more outspoken artists on this topic, and a 'minority' artist herself, resents this forced "awareness of colour differences in writers" and contends that publishers do not discriminate against writers of colour--that it is not "any easier for a talented white writer than for a talented writer of colour" (Lau 1994, 3[D]). In fact, while Lau agrees that "[i]t is hard to publish and find an audience", she insists "writers share this difficulty equally" (Lau 1994, 3[D]). In tandem with

Lau, 'minority' writer, Neil Bissoondath (1994) argues that the "difficulties of getting published, and published effectively with good production, good distribution, wide notices-is one shared by every writer and would-be writer in the country, regardless of colour or ethnicity" (Bissoondath 1994, 165). More significantly, in terms of the weaknesses of Argument from Access, Bissoondath questions when "tokenism" stops being "tokenism?" He wonders "[h]ow many 'minority' writers must be published before the accusation is retired?" (Bissoondath 1994, 165).

c. Argument from Ownership

(Black and Morris 1992; Browning 1991; Churchill 1991/92; Dawes 1993; Freeman 1992; Fung 1993; Hassan 1993; Hoy 1993; Hurka 1989; Lott 1993, 3, 19; Lutz 1990, 1993; Maclear 1993; Mays 1994; Mills 1994; Taylor 1994; Thomas 1994; Walkem 1993; Valaskakis 1993).

In the Argument from Ownership, a category of argument already identified by Claudia Mills (1994), the claim is made that group A's narratives and images are the "property" of group A. When this cultural 'property' is taken by others, some groups argue a "plagiarism of sorts"--a profiting from others' stories--transpires (Mills 1994, 3). Stories and experiences are construed as commodities that can be "stolen", "appropriated" and "exploited" (Dawes 1993,

10, 14; Keeshig-Tobias 1990, 7[A]; Lutz 1993, 247). Embedded in the ownership argument is the concern minority groups have about outsiders acting "opportunistically" and as a result, misrepresenting or distorting their stories and experiences (Mills 1994, 4). Issues of "copyright", "robbery", and "expropriation" also attach to Argument from Ownership when cultural experiences and histories are construed as the exclusive property of one particular group (Dawes 1993, 10, 14; Lott 1993, 19).

The most problematic aspect of Argument from Ownership is the question of ownership itself: Can spirituality, culture, themes, and plots ever be 'owned' by anyone or any group? Is ownership a misleading metaphor? Analogously to the Argument from Accuracy, which claims 'we already know' or 'know best', Argument from Ownership is even more an a priori argument since it claims in absolutist tones, that its members own its narratives by virtue of membership in the group.

Another version of Argument from Ownership is Argument from Displacement which signifies those arguments which address in greater latitude the displacement of a group of people (usually Aboriginal peoples)--an entire culture and history. Thus, in this version, appropriation is understood as part of the larger process of dislocation of a culture. Hartmut Lutz (1990) puts it this way:

In looking at the appropriation of Native cultures by non-Natives, and considering how very little, as a rule, non-Natives in North America tend to know about the indigenous cultures of the continent, it seems obvious that something like a collective displacement of the process of colonization, dispossession, partial genocide and continued cultural ethnocide has and is taking place (Lutz 1990, 174).

Lutz considers appropriation to be "ahistorical" because the history of Native/non-Native relations is ignored: it simply does not figure in the "agenda" of appropriation discourse (Lutz 1990, 173). Lutz is obviously referring to the sad history of abuse, oppression and genocide that Native peoples (in terms of their language, culture and land) have faced at the hands of the white man. In agreement with Lutz, Canadian writer and poet Dionne Brand (1993) claims that notions of "voice, representations, theme, style, imagination" are charged with historical dislocations that often pass by unexamined, completely ignored by the larger society. Brand insists that these historical dislocations and contexts, and their impact on the present, must be rigorously examined when considering the issue of voice appropriation (Brand 1993, 15).

d. Argument from Opportunity

(Black and Morris 1992; Browning 1991; Dawes 1993; Freeman 1992; Fung 1993; Hassan 1993; Hill 1992; Hurka 1989; Lutz 1990; Maart 1993; Mills 1994; Ross 1994; Walkem 1993; Young-Ing 1994).

Argument from Opportunity, one of the four argument types diagnosed by Claudia Mills (1994), is conceptually allied to the Argument from Ownership. It maintains that where a B-group member (a member of the dominant group) is selected for a job that involves discussing, teaching or otherwise representing A-group (minority group) experiences, some group A member has been simultaneously rejected for the position, resulting in loss of an important opportunity for that group A member (Mills 1994, 2). Mills believes that this argument is only effective if group A is a "victim group"--a group which has in the past and/or continues to suffer from lost opportunities and discrimination. Thus, the strength of this argument, according to Mills, depends on the value we assign to equal opportunity (Mills 1994, 2). Argument from Opportunity is also relevant to Affirmative Action programs and hiring quotas that many Canadian organizations have chosen to or been forced to implement.

e. Argument from Racism (Reverse-Racism)

(Black and Morris 1992; Brand 1993; Miki 1994; Philip 1990; Thomas 1994; Young 1992). Support for Argument from Reverse-Racism include: (Alexis 1995; Cernetig 1994; Ross 1994; Thomas 1992; Valpy 1994).

Argument from Racism (Reverse-Racism) is an argument type invoked by both those who believe appropriating the voice of another is morally wrong and by those who believe that putting oneself in the 'shoes' of others creates better understanding. In order to distinguish between the two versions of this argument, the work done by the two will be treated as claim and counterclaim, or Argument from Racism versus Argument from Reverse-Racism.

Argument from Racism, in its strongest form, claims that telling another's story, no matter how it is done, is "in itself racist" (Black and Morris 1993, 20). There appears to be an element of social determinism at work here since the argument refuses to consider the quality or accuracy of the representation and provides no boundaries for the definition of racism. It simply makes one sweeping generalization: Only if you are born into a particular race/ class, may you represent that race/ class. Should you represent those outside your race/ class, you are labeled a racist. According to Roy Miki, writer and organizer of The "Writing Thru Race" conference held in Vancouver in

1994, despite all of Canada's other differences (age, gender, nationality), Canada's one common ground is our shared "racism" (Miki 1994, 23[A]). Similarly, Dionne Brand argues that formal culture in Canada is organized around "whiteness" and the false assumptions of "white racial superiority" (Brand 1993, 17).

Based upon these premises, one might question whether a "minority" writer would be considered a racist if he/she were to depict a "majority" person? While no author specifically responds to this paradox, the questions appears to have a built in dimension for minority members due to their shared oppression and discrimination: the focus of voice appropriation and the desire to be heard revolves only around themselves and their group, not the majority. Both Janisse Browning (1991) and Marlene Nourbese Philip (1990) imply that because of the power dynamics between majority and minority members, appropriation of voice (by the minority members) is simply a non-issue. How could a minority take away from a majority when the majority member already has a clear advantage? Moreover, Philip, in effect, dismisses this question by claiming that "once an oppressed group is finally able to attain the means of making its voice heard...it is far less concerned in rendering audible the voice of its oppressors, and infinitely more interested in making public the group's own reality" (Philip 1990,

212) .

In response to Argument from Racism, Argument from Reverse-Racism is often invoked by those who support the act of appropriating the voice of another; and, as the sub-title indicates, it too employs the powerful charge of racism. Argument from Reverse-Racism claims that the idea that only members of a race can write about or otherwise depict that race is "based on false and even racist assumptions about the differences between groups" (Thomas 1992, 36[C]). Advocates of this view argue that other factors such as age and gender influence experience just as much as ethnicity. Furthermore, charges of cultural appropriation draw "inappropriate and regressive attention to race and ethnicity" (Thomas 1992, 36[C]). One commentator (Alexis 1995) disputes Brands's argument from racism, claiming that he resents the connotation made by Brand that "white" is a "synonym for racist" (Alexis 1995, 19[C]). In reference to the 1994 Vancouver conference "Writing Thru Race" to which only minority writers had access, commentator Val Ross (1994, 15[C]) reports that many white writers alleged "reverse-racism" since only white writers were excluded from the conference.

f. Argument from Equality

(Bissoondath 1994; Hume 1994; Ideas on Stereo, 1994; Lau 1994; Makin 1994; Paris 1994; Valpy 1994).

The Argument from Equality is essentially a response or counter-argument to Argument from Opportunity, since it proposes that those who are truly talented will get published eventually, regardless of their race or ethnic background. Despite its connection to Argument from Opportunity, Argument from Equality remains situated in this section of the thesis because of its ethical slant--it assumes all people ought to be treated equally in a given society. Evelyn Lau, a non-white writer, champions this argument when she states that when it comes to publishing and artistic exposure, colour and race matter less than talent and perserverance (Lau 1994, 3[D]). Lau believes that all artists face the same difficulty of finding a receptive audience and getting their work published. Arts critic, Christopher Hume, agrees with Lau when he argues that there exists plenty of opportunity for minority artists within the present publishing houses and media structures. Furthermore, Hume claims that telling one group of people that special funds will be set aside for them because of past injustices will only make that group feel different and alienated: Equality would be better served if we allowed "nature

to take its course" (Hume 1994, Ideas on Stereo).

The Argument from Negative Multiculturalism can be classified as a variant of Argument from Equality. The Argument from Negative Multiculturalism, articulated best by its most forceful spokesperson, Trinidad-born writer Neil Bissoondath, claims that multiculturalism is protectionist: it encourages people to "hide behind ethnic walls" (Makin 1994, 4[A]). Bissoondath insists that not everyone wants to be constantly associated with their ethnic origins, and that some people even resent such links (Bissoondath 1994; Makin 1994, 4[A]). Critics of Canada's 1971 multiculturalism policy and its special treatment for minority artists, argue that multiculturalism has "robbed the country of common values and an accepted heritage" (Makin 1994, 4[A]). Along with Bissoondath and other critics of multiculturalism, Evelyn Lau is "suspicious" of multiculturalism's influence on the arts; and she believes closed conferences like the "Writing Thru Race" conference, which multiculturalism encourages, are unlikely to create opportunities for anyone (Lau 1994, 3[D]).

g. Argument from Solidarity

(Black and Morris 1993; Cernetig 1994; Dawes 1993; Maclear 1993; Mills 1994; Valaskakis 1993; Valpy 1994;).

According to Claudia Mills (1994), who first identified it, the focus of Argument from Solidarity is the cultural health or integrity of the minority group. Argument from Solidarity claims that group-A (minority group) members have an interest in and a need for material about their own lives and culture in order to foster a sense of community (Mills 1994, 4). "Group solidarity" Mills argues, is most important for victim groups. Accordingly, the Argument from Solidarity appears to be an a posteriori argument since it proposes a goal--fostering solidarity among minority cultures. A variant of this argument is found in articles and commentaries dealing with the 1994 Vancouver conference "Writing Thru Race". It comprises comments made by William Deverell (vice chairperson of the conference) and by other organizers of the closed conference who claim that the conference provided an opportunity for non-white writers to "share their problems in the comfort of their own numbers without the eyes and ears of Big White Brother to mute their voices or, indeed, their anger" (Valpy 1994, 2[A]). Argument from Solidarity was further exemplified when many participants in the "Writing Thru Race" conference

identified strategy meetings such as the closed conference itself, as a special form of 'voice'.

h. Argument from Political Effectivity and Moral Responsibility

Argument from Political Effectivity and Moral Responsibility is articulated most clearly (and maybe even solely) by author Linda Alcoff (1991) in her article, "The Problem of Speaking for Others". In this article, Alcoff explores both the practical and moral dimensions of speaking for others. Alcoff insists that the proper response to the voice appropriation controversy should not be a total retreat from such a practice. While she agrees that we need to encourage more receptive listening on the part of privileged groups, a retreat from speaking for others in all instances may result merely in a "retreat into a narcissistic yuppie lifestyle in which a privileged person takes no responsibility for her society whatsoever" (Alcoff 1991, 17). In other words, Alcoff argues, such a retreat from speaking for others is irresponsible and significantly undercuts the possibility of what she calls "political effectivity" (Alcoff 1991, 17).

Political effectivity, according to Alcoff, enters

the appropriation controversy by questioning whether speaking for others is at all effective: does it serve a purpose; does it have an intended effect? Alcoff believes that the possibility of speaking for others in terms of helping or empowering others, bears crucially on the possibility of political effectivity because "[b]oth collective action and coalitions would seem to require the possibility of speaking for" (Alcoff 1991, 11). She is convinced that there are instances where the practice of speaking for others has been "politically efficacious in advancing the needs of those spoken for" (e.g. fund raising for a cause, publicity, and government pressure) (Alcoff 1991, 18).

In addition to speaking for others being politically effective in certain instances, Alcoff argues that privileged persons may also have a moral obligation to speak out on behalf of those less advantaged. Retreating from speaking for others as a response to the contemporary political climate, or in other words, declaring that "I speak only for myself", has the "sole effect of allowing me to avoid responsibility and accountability for my effects on others; it cannot literally erase those effects" (Alcoff 1991, 20). Thus, in claiming we will speak only for ourselves, we take no responsibility for being "true" to the needs and experiences of others (Alcoff 1991, 22). Alcoff is convincing when she concludes that

"surely it is both morally and politically objectionable to structure one's actions around the desire to avoid criticism, especially if this outweighs other questions of effectivity" (Alcoff 1991, 22). The moral tenor of the argument is unmistakable when Alcoff stresses the individual's responsibility to others. For that reason, this argument is situated within the containing category of ethics.

IV. META-ARGUMENTS

There are three voice appropriation arguments which figure as meta-arguments because they present themselves not so much as one of the positions within the debate, but rather as commentaries about the larger controversy itself. Structurally, then, the arguments pose themselves outside the debate. All three of these meta-arguments reflect the sentiment that the appropriation debate is unworthy of the degree of media and public attention it has received, and that the debate itself has been greatly inflated. The category of meta-arguments comprise the Argument from Political Correctness; the Argument from Diversion; and the Argument from Absurdity. Even though the meta-arguments are essentially dismissive of the issue, they tend to favour the side which allows voice appropriation.

i. Argument from Political Correctness

Simply stated, this argument claims that voice appropriation has only become an issue in the media and in artistic circles because of the current atmosphere of 'political correctness'. This argument perceives the voice appropriation controversy as a reflection of the political and economic conditions in Canada at present. While the CBC continues to suffer from budget cuts and Canadian media outlets fight to stay alive in the shadow of larger, more financially stable American companies, there is pressure to reduce popular sentiments of frustration and economic hardship to the discourse of victimization. Neil Bissoondath summarizes this victimization discourse and the voice appropriation debate itself by arguing (somewhat sarcastically) that:

the writer who dares to explore the territory deemed not his or her own becomes a thief, open to charges of racism, sexism, imperialism from people who object to being portrayed in ways other than they would portray themselves--and self-portraits, let us face it, tend to be free of blemishes (Bissoondath 1994, 167).

In reference to this argument type, commentator John Bentley Mays has been the most outspoken. His position, more rhetorical than logically developed, is that:

[a]ppropriation...is, of course, a key buzzword in the bash-a-honky rhetoric now popular among 'minorities'

and others who have decided history has given them a raw deal" (Mays 1994, 15[C]). Thus, the Argument from Political Correctness dismisses the entire voice appropriation debate by relegating voice appropriation to a cluster of popular political and social slogans.

ii. Argument from Diversion

(Callwood 1994; Giangrande 1990; Ross 1994; Shields 1990).

Argument from Diversion is articulated best by writer June Callwood, who argues that the voice appropriation controversy itself deflects us from the real issues and away from consensus:

[w]e will not survive if we do not find the common ground. The style of raw accusations which prevails now...diverts energy and focus from the real issues of our times, which are poverty, violence and the suffering of children (Ross 1994, 1[C]).

The argument is simple in outline since it claims only that too much time and energy is being wasted on the appropriation debate--time and energy which could be pooled together and expended on more crucial social issues. Writer Carol Shields (1990) extends Argument from Diversion one step further when she adds that "[a] lot of energy has been lost in the name of

authenticity; we fear far too much that critical charge--'it doesn't ring true'--and worry too little that it may not ring at all" (Shields 1990, 257).

iii. Argument from Absurdity

(Hook 1989; Phillips 1991; Ross 1991).

The last of the meta-arguments simply dismisses the entire voice appropriation issue by labeling it "absurd". Philosopher Sidney Hook claims the voice appropriation issue, especially when it enters the realm of scholarship, indicates nothing more than a "sophisticated revival of the old folk fantasy"--that "only like can understand like" (Hook 1989, 31). Hook's argument is itself structured in classic "reduction to the absurd" form: when he claims that arguing against voice appropriation is analogous to arguing that "men cannot be good gynecologists, that only women with children can understand and administer family law, that only fat physicians can study obesity and hungry ones the physiology of starvation" (Hook 1989, 32). Hook, then, joins others (Ross 1991; Phillips 1991) in rejecting 'authenticity of voice' as an absurd requirement since it violates the basic tenants of creative and effective writing. Caryl Phillips, himself

a writer of Colour, also considers the question of voice appropriation to be an "absurdity" and claims he pays little attention to the entire debate (Ross 1991, 1[C]). But Phillips then moves on to make a much more interesting point when he remarks that James Baldwin, the celebrated Black American writer, was much closer to the truth when he argued that "the true novel of American racism will be written from the point of view of a white member of a lynch mob" (Ross 1991, 1[C]). Phillips, whose recent novel Cambridge is told through the voice of a 19th century slave-owning Englishwoman, claims that what people are forgetting in the voice appropriation debate is that "[t]he novelist is not there to judge his characters but to give them life" (Phillips 1991, 1[C]).

V. Argument from Aesthetic Value or Commercial Appeal

This final argument is placed in a genre of its own since, unlike the other argument types, it is based on the commercial appeal (profit potential) of works of art. It emerged more clearly and explicitly during this writer's discussions with her committee members. While Argument from Aesthetic Quality is both similar to Argument from Equality in many ways and represents a less published argument in the mainstream media,

it remains a valid argument: an argument that often surfaces when voice appropriation is discussed in casual conversation. Argument from Aesthetic Quality or Commercial Appeal contends simply that the most creative, determined and marketable artists will eventually succeed--that public tastes and consumption are really the deciding factor in terms of publishing and success. In short, this argument acknowledges marketplace preferences as something that may and does encourage voice appropriation and may discourage minority artifacts.

Oddly enough, the two fiercest advocates of this argument are Evelyn Lau (1994) and Neil Bissoondath (1994), both non-white writers who have succeeded in the Canadian market. This argument type also criticizes the other argument types and the voice appropriation controversy itself, for ignoring the critical question of artistic ability--good artists as opposed to poor artists. Evelyn Lau (1994) argues that skin colour and ethnicity are not what publishers and curators are concerned with; that artistic ability and the commercial potential (marketability) of the work itself is of greater importance. Lau claims that writers' "individual styles, the clarity of their observations, the beauty of their sentences" are of greater importance to her and that she "would not have thought that a writer would want it any other way" (Lau 1994, 3[D]).

In her mind, Lau argues, it has always seemed that "those who were truly talented would eventually be successful regardless of their backgrounds" (Lau 1994, 3[D]). In summarizing this argument, Neil Bissoondath, in his book, Selling Illusions (1994) claims that:

[t]here is much good writing being produced, and there is even more bad writing. Publishers will not turn down the chance to make money. They do their best to seek out and promote good work, but they too are human, with all the failings of other humans. It is at best ungenerous to label their fallibility as racism, or to accuse them of tokenism when they try to draw attention to their track record of publishing 'minority' writers and their plans for future projects (Bissoondath 1994, 165).

VI. ANALYSIS OF ARGUMENTS

Claudia Mills's 1994 typology constitutes a theoretical precedent for the method of classification of voice appropriation arguments. In that work, Mills (1994) attempts to understand through the identification of four basic argument types and their classification the claim that individuals representing and/or discussing the experiences of group A ought to be members of group A, rather than group B. This chapter, by expanding that taxonomy, has disclosed much more about the voice appropriation debate. Equally relevant to the method of analysis used in this thesis, moreover, is Weaver's insistence that arguments are a means for

interpreting reality and that sources or types of arguments can be "ranked" or "ordered" according to their ethical worth (Foss, Foss, and Trapp 1985, 59). Indeed, Weaver believes that from an ethical point of view, certain ways of arguing are better (stronger) than others. Consistent with Weaver, this thesis also considers certain voice appropriation arguments to command greater force because of their combined ethical strength and logic.

Consider for example, the meta-arguments Argument from Diversion, Political Correctness and Absurdity. They do, indeed, have some truth (i.e. they may indeed divert attention from ground-level issues), but they do not really have enough force to invalidate many of the arguments on the minority side, let alone all the arguments on either side, or the entire debate itself. Besides, even if the debate does deflect, that is only one possible consequence: There are other equally or more valuable competing consequences that flow from the debate (e.g., public awareness, increased sensitivity, increased funding and board-representation, etc.) that could be offered in its defense. The argument from Political Correctness, because it relies so much on a derisive label or epithet, reads more as a cynical dismissal than a compellingly structured counter-argument. Similarly, Sydney Hook's reductio ad absurdum signified in his claim that to argue against

voice appropriation is analogous to arguing that "men cannot be good gynecologists..." (Hook 1989, 32), is unconvincing for at least two reasons. First, it relies upon some strained analogies because in many or most cases being an *x* is not obviously a necessary condition to understand *x*. It may be necessary in the case of creating minority narratives, more so than in the case of other endeavors. Second, it ignores or abstracts from an important social reality: the profound sense of dispossession and outrage among certain minorities, their artists and spokespersons.

Certain competing arguments in the voice appropriation debate tend to neutralize one another, or limit the effectiveness of each other, for one of two reasons: (a) the values or principles are double-edged, or (b) because the alternative values or forces on one side are sufficiently weighty to limit the effectiveness of opposing arguments. Argument from Narrativity for example, can be invoked by either side of the voice appropriation debate depending on how one frames narrativity. On the one hand, Argument from Narrativity is most commonly used in the voice appropriation debate to bolster the creative spirit of writing. This version of Argument from Narrativity holds that the ability (and freedom) to write in the voice of another central to the creative process of writing. On the other hand, Argument from Narrativity

can be formulated to resemble and support Argument from Ownership if the power of stories to define and reinforce a culture is stressed more than the creative element. In either situation, Argument from Narrativity is based on a shared vision of the important position stories and narrative accounts occupy in our daily lives. Whether narratives are seen as a vehicle to empowerment or as a bridge to understanding, they remain central to our conception of human beings as essentially "storytelling animals" (Fisher 1987, 58).

The Argument from Freedom and the Argument from Rights/Access work to constrain one another. Argument from Freedom asserts that freedom of speech and expression is paramount (Valpy 1994, Conlogue 1993). In a more particularized form, however, Argument from Rights, reduces this claim by arguing that rights are dangerous and even meaningless if there exists no correlative duty or if the right to use the voice of another comes at the cost of silencing the other (Philip 1990, 212).

The rhetoric in Racism/ Reverse Racism arguments is especially instructive because each side, by appealing to the same double-edged category of racism, seeks to defuse much of the other's fire power. Thus, it can be said that in effect, these two 'race' arguments (Argument from Racism and Argument from Reverse-Racism) cancel one another out. While Argument

from Racism claims (in its extreme) that telling another's story, no matter how it is done, "is in itself racist" (Black and Morris 1993, 20), Argument from Reverse-Racism insists that the entire idea that only members of a particular race/ culture can know or depict that race/ culture is also based on "racist" assumptions about the differences between groups (Thomas 1992, 36[C]).

While Arguments from Freedom (to create or narrate) are limited by minorities' rights or claims, argument from Alternate Knowledge limits or constrains the power of the arguments from Accuracy and Cultural Authority since others outside the group may be able to acquire the necessary knowledge, accuracy, authority etc. to represent others. Argument from Equality and Argument from Aesthetic Values/ Commercial Appeal limit Argument from Opportunity by arguing that those who are truly talented will get published and/or recognized regardless of their race or ethnicity. When Argument from Equality and Argument from Aesthetic Quality/ Commercial Appeal are voiced by minority writers (e.g. Bissoondath, Lau) they carry even greater authority.

The power of argument is also enhanced by word choice. Each side of the debate uses heavyweight ethical (e.g. 'theft') and emotional language (e.g. 'censorship') to demonize the other side and thereby reinforce its own position. Most noteworthy for its

instrumental use of language is Argument from Ownership (and related claims) which often invoke terms such as "theft", "stealing", "robbery", "copyright", "plagiarism", "property", "possession", "monopolization", "silencing", "displacement", "exploitation", and "appropriation" (See Blackley 1993, Browning 1991, Dawes 1993, Fung 1993, Hassan 1993, Hill 1992, Hoy 1993, Lutz 1990, Maclear 1993, Mart 1993, Mills 1994, Valaskakis 1993, Walkem 1993). Framing voice appropriation in this manner immediately extends the debate and the arguments themselves to a higher, ethical dimension. Similarly, arguments predicated on freedom, rights and (reverse) racism also use powerful terms and metaphors to convey their messages. Versions of Argument from Freedom are often characterized by highly emotional references to the "thought police", "book burning" by the Nazis in the 1930s, putting "No Trespassing" signs on our "psychic landscape", "Orwellian society", "censorship", and violations of society's most sacred freedoms of "speech" and "expression" (Fulford 1994, Giangrande 1990, Hurst 1992, Paris 1992, Young 1992). In addition, the word "racism" appears many times in the voice appropriation controversy, both as a powerful accusation and as a dismissive counter-accusation. Spokespersons for minority groups have accused white writers and artists of being racist in attempting to portray experiences

not their own (Black and Morris 1992, 20) without bothering to distinguish between the purpose and intentions of a well motivated writer and those that prompt other less equivocal forms of racist behavior. Other commentators respond, claiming that in today's political climate, the white race suffers from reverse-racism (Ross, 1994, 15[C]). In a less extreme manner, Argument from Rights/Access also takes advantage of the effective use of morally loaded terms such as "obligation", "duty", "neglect", and "abuse" (Philip 1990, 212, 217).

Some voice appropriation arguments clearly reinforce others. For example, it is evident from chapter two, which reviews the Canadian publishing situation, that Opportunity and Displacement arguments support and extend the Ownership argument since it can be argued that jobs, wages, sales and profits are lost by minorities. When mediated through the critical-theory concept of commodification, the phenomenon of historical dispossession seems all the more incontestable. The argument from Solidarity also seems to reinforce or supplement opportunity, displacement and ownership claims. On a related note, Linda Alcoff's article (1991) which advocates that speaking for others is both politically effective and a personal responsibility we all share, provides a philosophical, altruistic underpinning for many or

most of the arguments in defense of voice appropriation, albeit a much more sensitive and socially beneficial form of voice appropriation. It is conceivable, however, that some minority spokespersons might interpret her offer as patronizing.

The epistemic arguments (Accuracy, Cultural Authority and Alternate Knowledge) seem to command special authority. There is a sense that life within a minority or oppressed culture gives its members an intimate understanding of that culture, a knowledge through acquaintance. It is reflected, for instance, in another important part of any culture: the expertise every speaker acquires in learning a mother tongue. One can approximate unaccented idiomatic skill from outside the culture, perhaps even master it, but flawless accuracy is less likely, certainly more difficult to come by.

Such acquaintance-based cultural knowledge cannot presume, absolutely, to be exclusive since others can master it in principle; nor is it necessarily total or even sufficient. One can, for example, have an intimate knowledge of one's family, tribe or culture without clearly grasping their dysfunctional or unhealthy side. Indeed, an outsider might see that sort of thing more clearly. But that sort of knowledge is of a more abstract or interpretive kind: in the mind of the outsider it is 'knowledge about', not the

direct kind of 'knowledge of' that figures in culture and communication. An experiential knowledge of one's culture, then, nearly always constitutes an epistemic and cultural authority that outsiders rarely match. The sorry history of Black-face minstrelsy and Aboriginal representations in commercial films, for instance, offer a strong case that voice appropriation often as not gets it wrong and, in the process, inflicts damage on communities. By the same token, if we think of voice as a communicative practice anchored in a culture's or tribe's knowledge of, then the Ownership argument gains credibility since insiders have something outsiders do not.

Still, Argument from Ownership remains difficult to justify despite its popularity because it considers intangible or transcendent aspects of our society (myths, legends, stories, and experience) to be the tangible 'property' (finite resources) of one particular group (culture). As some commentators have noticed, the claim of "theft" often associated with voice appropriation (as if experiences and ideas can be owned) has effectively placed appropriation "in the overheated phrase book along with assimilation and cultural genocide" (Enright 1992, 5). Mills also concedes the problem of validating such an ownership claim. "It is not clear", Mills argues, "that stories, or spirituality, or, in its totality, a culture, are the

kinds of things that can be owned" (Mills 1994, 3). While it is generally agreed that "sentences, paragraphs and pages" can be copyrighted, Mills questions whether "plots, themes, or truths" can ever be (Mills 1994, 3). Mills further qualifies the Argument from Ownership when she states that "my retelling of your stories or my imitation of your rituals does not violate your right or opportunity to perform them as well (Mills 1994, 3). On the other hand, the social phenomenon of commodification does serve to enhance the force of Argument from Ownership (i.e. the desire to 'appropriate' the experiences of others may be rooted in one's reduction of these stories to more mere commercial appeal).

In spite of their combined strength, the arguments situated under the epistemic category share a core problem: the assumed one-dimensional or unitary definition of people by a single category (i.e. race or ethnicity), when in fact, each person can be identified or classified in many ways. Nearly all of the epistemic arguments favour the view of minorities and define such groups in terms of narrow categories of race or ethnicity--ignoring the many other ways people define themselves (e.g. age, gender, financial status, profession). Both Neil Bissoondath and Evelyn Lau (1994) resent the fact that multiculturalism in general, and the voice appropriation controversy in

particular, segregates people into racial and ethnic categories that emphasize the differences between people and not the similarities. Lau insists that she has never wanted more opportunities based on the colour of her skin that would "separate" her from the "equally struggling white male writer next door" (Lau 1994, 3[D]). Bissoondath is similarly offended by certain minority groups' requests to be treated differently than the average Caucasian person, and by Canada's desire to initiate programs that encourage such segregation and racism. He claims that "[o]n a personal level, as a member of those targeted racial minorities, I can think of few things more demeaning to me than to be offered an advantage because of my skin colour...no matter what I have struggled to achieve, I am still being judged on the colour of my skin" (Bissoondath 1994, 95). In tandem with Lau and Bissoondath, Robert Fulford argues that both multiculturalism and voice appropriation, by over-emphasizing the "rights" of the "group", promote a disturbing "vision of each of us as the member of a racially designated cluster" (Fulford 1994, 1[C]).

In short, the most troublesome aspect of the otherwise convincing group of epistemic arguments is their individual and collective failure to recognize the complexity of each person. If one believes, as

some of the epistemic arguments assume, that only 'members' know, or know best the life and experiences of a particular group, than one must ask how we define membership--and, are people ever only members of one group? For example, an artist of colour may argue that only people of colour should represent people of colour and their experiences. But what if that same artist was a woman and a senior citizen. How would she define herself and which group membership (race, age, gender) more thoroughly encompasses who she really is. Would all women of colour (despite differences in age, profession, education) agree that their race defines their identity more so than the other factors. It is these types of questions that many of the epistemic arguments (particularly those advocating the minority position) fail to consider; and, as a result, they are limited. The possibility and existence of diversity within the same ethnic, racial or gender group needs to be addressed by any epistemic arguments that assume a unitary definition of people.

VII. CONCLUSION

In developing and extending Claudia Mills's (1994) primary classification of anti-appropriation arguments, and in identifying more than a dozen additional argument types beyond those in Mills's original taxonomy, this chapter amplifies our understanding of the complexity of the voice appropriation controversy. It also enables us to identify and evaluate the ethical weight of these arguments. While freedom of expression and creativity, at a very abstract level, might seem to neutralize much of the minorities' case, the fact remains that there is an accumulation of historical imbalance and a combination of epistemic and ethical considerations which give minority complaints a clear edge. Indeed, the collection of the ethically-based arguments coupled with the basic moral outrage many Canadians have expressed, clearly underscores the moral dimension of the entire controversy. This underlying moral dimension of voice appropriation will be explored further in chapter five, which offers a three-fold ethical approach to voice appropriation, culminating in a moral perspective developed by feminist ethicists Carol Gilligan (1982) and Nel Noddings (1984).

CHAPTER 5

A THREE-TIERED APPROACH TO THE ETHICS OF VOICE APPROPRIATION

In the voice appropriation debate, the need for and importance of freedom of expression (freedom to communicate, speech freedom) advocated by both sides tends to particularize itself into the language of rights and access. Thus, ethical theory unavoidably has its place in the voice appropriation debate precisely because of the way proponents and opponents of voice appropriation frame their arguments (i.e. in terms of rights, freedoms and (in)equality; and because of the language used in certain argument types (e.g. 'theft', 'stealing' and 'distortion')). Ethics, as this chapter will illustrate, provide yet another mode of discourse in which to discuss the communication claims of oppressed or "wounded" cultures--the very cultures that voice appropriation affects the most. Accordingly, this chapter sets out another approach to moral choice by offering a sketch of three stages of consideration from which voice appropriation can be addressed: first, in terms of rights and access; second, from a model of justice which includes John Rawls's "veil of ignorance" theory (1971); and lastly,

in terms of the moral development theories developed by a number of feminist ethicists including Carol Gilligan (1982) and Nel Noddings (1984). The purpose of this chapter is to suggest moral approaches to a cultural conflict already framed in ethical terms. It does not, however, pretend to supply an exhaustive commentary, but only a more adequate framework from which to assess this complex phenomenon.

I. ACCESS AND THE RIGHT TO COMMUNICATE

In a recent article reviewing the participation of Aboriginal and other minorities in Canada's cultural development, Fil Fraser (1994) acknowledges dramatic growth and impact in this whole area of cultural and artistic activity. At the same time, however, he also acknowledges "a dearth of research into cultural industries" (Fraser 1994, 477) within these Aboriginal and minority sectors. In his concluding remarks, Fraser itemizes a number of pressing research needs, most of which have an unmistakable economic, organizational, and professional bent (Fraser 1994, 490-491). While Fraser's commentary is directly relevant to voice appropriation, surprisingly, he does not mention voice appropriation or cultural appropriation specifically.

While it may be (and, indeed, has been) initially

tempting to frame the voice appropriation conflict in terms of political categories of suppression such as censorship, domination and hegemony, and also more neutrally in terms of economics and organizational development, a much deeper theoretical motif winds itself throughout the rhetoric, structures and practices which punctuate the voice appropriation landscape: the right to communicate. Ironically, both sides in this conflict can lay claim to this imperative whose formulation is at least as old as Article #19 of the 1948 Universal Declaration of Human Rights which champions the right to communicate "regardless of frontiers" (e.g., cultures). More often than not, the right to communicate expresses itself within larger and more secure cultures, as freedom of speech and freedom of the press. A generation ago, however, Herbert I. Schiller argued compellingly that in practice such freedoms, unalloyed to qualitative concerns (and constraints), can inflict considerable harm:

Freedoms that are formally impressive may be substantially oppressive when they reinforce prevailing inequities while claiming to be providing generalized opportunity for all (Schiller 1976, 45).

Within a growing awareness of cultural domination at both the international and domestic levels, what began to emerge more than a generation ago was an understanding that the right to communicate was not exhausted in either speakers' rights, abstractly

conceived, or in mass circulation of messages. Rather, a more perspicuous understanding of the right to communicate involved as well the rights of the audiences, the relationship to the media of the less privileged and smaller communities, individuals, and the non-professionals. In short, the right to communicate entails access.

Well before the public emergence of the voice appropriation controversy in Canada, some of these concerns had already been made explicit in a number of UNESCO-sponsored reports in the 1970s and early 1980s, notably in Berrigan (1977) and Fisher (1982). Berrigan, for example, was among the first to recognize that democratization of the media would not ensue without "access by the non-professional to media channels, and participation by the non-professional in the planning, management and administration of the media process" (Berrigan 1977, 16). There is certainly latitude in this notion, and Berrigan pointed out that the concept of access extends to several levels of the communication process: policy-making, selection (of information and programming options), production (e.g. tools, management and technical assistance) and response (i.e. the right of audiences to respond and criticize). It is significant, too, that in unpacking the concept of access, Berrigan lists access to policy first--significant, but not surprising since often

the relationship that one holds in relation to policy greatly determines one's relationship to power. The elements of that power are evident when Berrigan spells out some of what he means by policy access:

access to media policy-making--the right of the individual to take part in decisions about subjects covered; access to the power of the media--the right to use them to influence others...to present a case; access to an audience; access to information...about the realities of the world, about alternative social forms, about inequalities and injustices; access to education; access to a choice of programme material; access to production...access to media tools--the right to participation in the making of programmes...access to media producers, to planners and to management...access to skilled production and technical help, to support...(Berrigan 1977, 18, 19).

It is apparent that discussions of access at this time were primarily motivated by a concern with electronic and broadcast media. Even so, the idea of access has apparent relevance to media in general, as well as to the whole issue of cultural appropriation. Aboriginal and African-American communities, for example, have complained that historically they have had little control over the production and dissemination of their own cultural images. (The role of Aboriginals in commercial films is a case in point). Many Aboriginal and African Canadian spokespersons (Browning 1991, Dawes 1993) insist that in order to regain their own voice they now require greater access to policy making, funding, publication and film production. More specifically, Richard Hill (1992) argues that

even in the "allegedly liberated world of art", we need to ask yourselves the following kinds of questions:

Who owns the major commercial galleries? Who runs the alternative spaces? Who teaches in the art schools? Who dominates and shapes discourse through criticism? Who hands out grants? Who runs and curates the Art Gallery of Ontario, the National Gallery, etc? Who writes and teaches art history? (Hill 1992, 16).

Accordingly, the right to communicate, more precisely "access", serves as a useful theoretical overlay to help us situate, define and understand voice appropriation in Canada.

The comments of Canadian writer Marlene Nourbese Philip (1990), some of which have been mentioned earlier in this thesis have specific relevance in terms of access and the right to communicate. Philip argues that voice appropriation exemplifies Canada's sorry history of oppression (e.g. Native reserves, residential schools) "in the network of institutions and organizations that reinforce each other in the articulation of systematic racism" (Philip 1990, 214). Indeed, she insists that the reality of voice appropriation is distorted when the public media--using what she calls the "privileged discourse" of our capitalist society--translate it into a debate about the censorship of white writers and their imagination instead of seeing it for she claims it is: racism. In voice appropriation, the ability to use the voice

of another usually realizes itself when the oppressor uses the voice of the oppressed. The price, of course, is that the subordinate culture is silenced, unable to speak in its own voice. While it, like any group, still has the right to speak in its own voice, that right is only nominal without the ability to do so--that is, without access to the conditions that would enable it to voice its own narratives. Philip, therefore, sees access not simply as part of an abstractly formulated right, but, as with Berrigan, in politico-economic terms as a network of opportunities which enable the artist and writer to speak from within their own culture to their own culture. The opportunities which constitute access are such concrete benefits as educational and financial resources, as well as something as personal as an artists' confidence in the validity of his/her own beliefs and experiences (Philip 1990, 213). Any discussion, then, of censorship and of possible restrictions upon white writers is misleading: what Aboriginal and artists of Colour need is "equal access to all the resources society has to offer" (Philip 1990, 216). Without that much, the offensiveness of cultural appropriation continues in the minds of many minority artists.

The accounts of Berrigan and Philip combine to provide an interpretive theoretical framework: voice appropriation in Canada can and should be studied not

merely as a pretext for free speech/censorship debates, but more importantly as a cultural phenomenon which arises from a denial of access to cultural production and which can really only be remedied by providing such access. This thesis has already examined selected recent events in the Canadian landscape which exemplify both limits on access and attempts to improve or restore access conditions.

While access and right to communicate are key concepts, the "right to communicate" represents a rather abstract, idealist response to voice appropriation. Access is a more particularized response in terms of enabling conditions. Access for all is appealing in theory, but in practice it too has its limitations. There are some harsh realities that simply cannot be ignored. Access, for example, is conditioned (or limited) by at least two factors. First, access is conditioned by certain marketplace realities such as talent and audience tastes. One of the key problems with the access argument is that it neglects to address the question of artistic ability, production values and audience preferences. One could argue convincingly that producers and publishers care little about an artist's ethnicity or race and much more about viewer demand and potential profit. Some works are simply more appealing to the public and therefore more commercially viable than other works. Indeed,

minorities themselves have become accustomed to majority works. As noted earlier (p.118-119), minority artists Evelyn Lau (1994) and Neil Bissoondath (1994) argue that those who are truly talented do get published eventually, regardless of the colour of their skin.

Second, while the concept of access was popular in the early 1980s, it seems to have evolved in recent years into a more technical or production-oriented concept: access in terms of alternative media or community-operated media. Recent examples of this dimension of access into alternative and local media include The Barefoot Channel (1990) and UNESCO Reports such as "Alternative Media: Linking Global and Local" (1993). Sources such as these suggest that access, meaning cultural identity and the right to communicate, popular ten years ago, has evolved into the language of alternative media that is, media owned and/or operated by the non-professionals and the community. Not surprisingly, of course, community television or alternative media are still perceived as a significant force in building "sustainable cultural identities" (Goldberg 1990, 65). Now, with the exception of Philip (1990), nearly all the literature in the last decade that deals with access and right to communicate, does so in the more technical idiom of alternative media and community channels. In other words, the 1970s-1980s concept of access has since shed its original ethical

emphasis upon rights and claims, and moved on to a more practical and realistic preoccupation with means and strategies: that is, the technology and organizational requirements of local and small-scale alternative media arrangements. That also means, however, that the concept of access as a more developed theory and response to, say, cultural disparity has also become, at this point, a more limited response to an inherently ethical situation than it once promised to be. Since issues of justice and injustice lie very close to the surface in the appropriation debate, and since that part of the cultural disparity is not addressable without some reference to technology and alternative media arrangements, a more direct approach in terms of justice theory may take us another step further. John Rawls's strategy for negotiating just dispositions offers us something more in this direction.

II. JOHN RAWLS'S VEIL OF IGNORANCE

In his epic work A Theory of Justice (1971), John Rawls offers a model of justice (136-142) that can be adopted and utilized in response to voice appropriation. It is Rawls's veil of ignorance theory (a component of his larger theory of justice) that is particularly relevant to the voice appropriation

controversy. Rawls believes that two basic principles lie at the heart of any just society:

First: each person is to have an equal right to the most extensive basic liberty compatible with similar liberty for others. Second: social and economic inequalities are to be arranged so that they are both (a) reasonably expected to be everyone's advantage, and (b) attached to positions and offices open to all (Rawls 1971, 60).

Rawls believes the way to arrive at just social rules is to begin with an initial situation characterized by fairness. The "original position" is the phrase Rawls uses to characterize this situation. Rawls's veil of ignorance theory challenges the agent to approach moral situations in terms of procedural justice--a reasoning procedure which discourages agents from making decisions or selecting principles suited only to their own particular circumstances. Approaching situations and making moral decisions from behind a hypothetical "veil of ignorance" is Rawls's method for ensuring the principles that one agrees to act upon are fair to everyone. When one is behind the veil, one sheds all social distinctions: the agent does not know his/her place in society in terms of class, position and social status. The actor therefore, does not know if societal rewards (success/fortune) will accrue as a result of his/her abilities, intelligence, strength or social position. This hypothetical ignorance of one's societal position is

magnified behind the veil to a point where even one's heritage and generation are unknown as are the economic/political situation and the level of civilization of the culture (Rawls 1971, 137). As a result of not knowing who one is and where one might emerge within a given society, Rawls believes that an individual would, out of necessity, choose principles whose consequences he/she is prepared to live with, regardless of what position in society he/she may hold. Furthermore, Rawls believes that the veil of ignorance assures that all people, at any given time, would choose the same principles of justice: "[i]t makes no difference when one takes up this viewpoint, or who does so: the restrictions must be such that the same principles are always chosen" (Rawls 1971, 139). Because the parties behind the veil have no basis for bargaining in the usual sense (since no one knows his/her assets and position in society), it is assumed people will make moral decisions that either tend to protect the less privileged or treat all persons as fairly as possible. In short, Rawls argues that "[i]f the original position is to yield agreements that are just, the parties must be fairly situated and treated equally as moral persons" (Rawls 1971, 141). Thus, the veil of ignorance is a useful strategy or technique that enables the development of a preferred (public) conception of justice that represents a genuine

reconciliation and integration of competing interests.

Rawls's justice strategy has direct relevance to appropriation. If all artists and writers were to make decisions behind the veil of ignorance, about who they represent in their works and how they do so, and if policy makers and agencies were to adopt corresponding stances, there would be a tendency to protect access and the voice of minority writers since people would not be sure of their future position in society (i.e. whether they would emerge as a member of a minority group or not). Thus, Rawls's theory provides a kind of model which lends itself to practical application. It offers too, a theory that applies to decision-makers and the decisions they make in terms of funding cultural production.

There are, however, noticeable ethical limitations to Rawls's theory. While his theory of justice may work well in the ideal or hypothetical conditions in which it was formulated, this theory is more difficult to implement in everyday life. Rawls assumes a moderate level of virtue and good will among human beings--that all individuals operating from behind the veil are already fair-minded persons with the desire and the courage to live by the rules and principles that a society has agreed to uphold. In fact, Rawls envisions a society that recognizes, more or less unanimously, a set of agreed upon principles and rules and which

acts in accordance with them. He assumes, that is, that all people desire social cooperation and foresee its benefits (Rawls 1971, 4).

According to critic Louis Katzner (1980), Rawls's theory is problematic in that Rawls does not stay true to his own notion of purely procedural justice. Rawls claims that the principles chosen from behind the veil, in the original position, are principles of pure procedural justice. Katzner argues that "[t]his means that following these principles will necessarily result in a just distribution of social goods because there is no independent criterion by which to access this distribution" (Katzner 1980, 61). Thus, Rawls's theory assumes that we somehow develop substantive principles of justice from behind the veil and then structure society accordingly. To the question, 'what if someone in society claims the social goods he/she ended up with are unjust or unfair?' Rawls responds--inadequately according to Katzner--that the distribution of goods resulting from the principles will be just "whatever it happens to be, at least so long as it is within a certain range" (Rawls 1971, 85). But Katzner believes that Rawls, in qualifying his position in this manner, never clarifies what this "range" means and thus, Rawls in effect, compromises his principles of pure procedural justice.

Furthermore, Katzner argues that there is another

problem with Rawls theory, more pressing than the
aforementioned issue of pure procedural justice.
Katzner draws attention to a key problem with Rawls's
theory:

even if it can be shown that the two principles
of justice necessarily follow from the original
position, one might still ask: why should I accept
those principles which can be deduced from the
original position? And to the answer, 'Because
the original position is the fair situation
or choice', you have not answered the question,
'why should I be fair?' (Katzner 1980, 65).

Without an answer to this critical question, Katzner
seems right when he claims that Rawls's theory remains
incomplete.

Lastly, in Rawls's theory, the quality of intention
is less than satisfactory since persons may make
decisions from behind the veil (and that benefit the
weak party) out of nothing more than self-regarding
interests. Each can be looking out for his/her own
interests, since one does not know where those interests
lie. One protects oneself only by assuming he/she
might be at a disadvantage in society. Katzner also
sees this self-interested aspect of Rawls's theory
as problematic. "The choice in the original position",
Katzner contends, "is based upon individual
self-interest; hence it is not necessary to assume
that the parties will subordinate their interests to
those of others, nor even that they will consider the
interests of others along with their own" (Katzner

1980, 65). Without a healthy other-regarding commitment in agents, Rawls's justice strategy does not seem firm enough to respect and protect the vulnerable party.

Since Rawls's theory is based most heavily on self-interest, his theory is defective in terms of a genuine concern for others--and yet this concern for others is a key component in responding more thoroughly to the voice appropriation controversy. It is not clear that Rawls's theory could or would protect the wounded cultures that speak out in the voice appropriation debate. Thus, while Rawls's theory may, in mediating between the two sides of the voice appropriation debate, tend to ensure the protection of the weaker party (minority interests), it does so only because majority members make decisions from a position motivated by self-interest, not because of a genuine concern for others. While Rawls's theory attempts to address the problem of fairly distributing the goods and opportunities of a given society, the theory alone fails to bring the qualities of ethical sensitivity and caring that we seek to the voice appropriation controversy. It is for this reason that we need to look to a contemporary feminist approach to ethics for its element of caring for others.

III. AN ETHIC OF CARE

In 1982, ethicist Carol Gilligan published In A Different Voice, a compilation of the results of numerous studies she conducted on how people talk about morality and themselves and how they make moral decisions. Throughout her studies, Gilligan noticed one consistent finding: Women exhibited a "different voice"--a voice not characterized by gender but rather by theme (Gilligan 1982, 2). While Gilligan cautions that this different voice is not an absolute, she does believe women perceive, understand and describe the world in a different manner than men, and that this perspective is worth listening to in our moral deliberations.

Gilligan began studying women and their approach to moral problems in response to Lawrence Kolberg's moral theories of development which are specifically geared towards males. Gilligan argues that Kolberg put forth theories of moral development which reflect a male way of reasoning since the same traits that traditionally defined the "goodness" of women (caring and sensitivity to the needs of others) are those that appear to make them "deficient" in Kolberg's theory of moral development (Gilligan 1982, 18). In studying women and their lives, Gilligan found that the majority of moral problems women face arise from conflicting

responsibilities. Men, on the other hand, often face moral problems arising more within a system of competing rights. In order to resolve their moral problems (consisting of competing rights and claims), most men rely upon modes of thinking that are formal and abstract. Women, because their moral problems arise most often from competing responsibilities, require a mode of thinking that is contextual and narrative. It is precisely these different modes of thinking, according to Gilligan, that suggest women's weakened development within the constraints of Kolberg's system (Gilligan 1982, 19). According to Gilligan, women situate moral problems within a context of compassion, in terms of conflicts between the self and others. Moreover, she argues that "[i]t is precisely this dilemma--the conflict between compassion and autonomy, between virtue and power--which the feminine voice struggles to resolve in its effort to reclaim the self and to solve the moral problem in such a way that no one is hurt" (Gilligan 1982, 71).

Combining the research of Gilligan and others (Noddings, Nunner-Winkler, Code) it becomes apparent that an ethic of care is motivated by a series of characteristics typical of women, but not exclusive to them. While most men follow what feminist ethicists call the "justice orientation", women often follow an "ethic of care" in making moral decisions. The

justice orientation characteristic of men reflects the expression of an "autonomous, individuated, independent self where moral judgments follow principles defining rights and duties" (Nunner-Winkler 1993, 143). The specific circumstances and potential costs are often not given due consideration in this mode of reasoning. In contrast to the justice orientation, an ethic of care and responsibility operates when the self is experienced as part of relationships--as a "connected self" (Nunner-Winkler 1993, 143). Here, moral judgments consider the specific details of concrete situations and there is a desire to minimize the overall harm done. An ethic of care, then, rooted in experience is essentially a relational perspective, a life-like narrative, if you will, that tackles moral problems in terms of one's connectedness to others.

In tandem with Gilligan and other feminist ethicists (Joan Tronto 1989, Rita Manning 1992, Claudia Card 1988) Nel Noddings (1984) also contributes to the development of an ethic of care. Noddings believes that women not only solve moral problems by situating themselves as near as possible in concrete situations and assuming personal responsibility for their decisions, but that women actually define themselves in terms of others (Noddings 1984, 8). Like Gilligan, Noddings cautions that the ethic of care she and other feminist ethicists propose is built on caring--a

characteristic common in women but not exclusive to women. Such a characteristic can be and is found in men. In order to define more clearly what care means in this context, Noddings explains that "[i]n a related sense, I care for someone if I have regard for his views and interests" (Noddings 1984, 9). Most importantly, though, Noddings argues that caring for entails responsibility to (another). When one cares for another person one must consider his/her way of life, needs, desires--and try to apprehend the reality of the other. Noddings believes that when we truly care for another we see the other's reality as a "possibility" for us. When we import an ethic of care into our moral reasoning, we actually make decisions by imagining ourselves and our needs as if we were in the position of the other (the one we care for). As a result, we act to "eliminate the intolerable, to reduce the pain, to fill the need, to actualize the dream" (Noddings 1984, 14). Therefore, according to Noddings, caring involves great empathy-actually stepping out of one's own personal frame of reference and into the other's. The most appealing thing proscribed by the ethic of care that Noddings and others articulate, is that such an ethic does not offer a set of knowledge claims to be tested or agreed upon. Instead, an ethic of care should be thought of more experientially as an "invitation to see things from

an alternative perspective" (Noddings 1984, 32). Noddings warns that caring should not be construed as dependency. In an ethic of care, the person (or group) cared for remains free to be more (rather than less) him/herself within the caring relationship (Noddings 1984, 73).

The ethic of care proposed by these ethicists has not been free from criticism. Some authors (e.g. Bill Puka) argue that feminist analysis fails to distinguish women's "nurturing strengths" from her "socialized servile weaknesses" (Puka 1993, 215). What angers authors such as Bill Puka is that the idea of a separate "female" ethic is sexist in itself and it risks turning "victimization into virtue by merely saying it is so" (Puka 1993, 215). Puka believes this ethic is an ethic of "victimization"--a pitfall for oppressed groups (women, minorities). In response to Puka's concerns, feminist ethicist Claudia Card (1988) contends that while these two different orientations to moral reasoning (the justice and the care perspectives) exist, they may represent more the responses of the "oppressed" and the "oppressor" than those of men and women exclusively (Card 1988, 128). The language of an ethic of care often describes the reality of abuse--covering both the care-giver's own feelings of manipulation and abuse and the feelings of unreciprocated caring (Card 1988, 129). While

incorporating caring into the decision-making process has the potential to lead to more informed, sensitive decisions, some critics warn that it may also trap the already oppressed in their positions. In situations of domestic violence, for example, Card contends that women are too often incapable (unwilling) to escape the abusive situation because of their perceived obligation to care for; their loyalty; and their responsiveness to the other (Card 1988, 129). In spite of this, Card insists that the least controversial aspect of an ethic of care and one that everyone should agree with is that "responsiveness, connection, and appreciation of context are as necessary to good moral thinking as abstract reasoning, autonomy, and concern for equality" (Card 1988, 126).

The shared dynamics between oppressed and wounded groups (cultures) and an ethic of care make the theories offered by feminist ethicists so relevant to voice appropriation. The appeal to an ethic of care is especially suitable to respond to and represent the needs and predicaments of wounded cultures (minority cultures). It seems apparent, too, that the appeal to justice and fairness (predicated upon motives of self-interest) is not enough--that a more authentic care must also be included when sorting through the ethics or appropriateness of voice appropriation. When a group perceives itself as culturally deprived

and oppressed (as do the majority of those who are arguing against voice appropriation), it means that its members have very likely been wounded or damaged in some way. According to Card, this damage or oppression is at least enough to merit some additional "care" and a "careful appreciation in addressing their viewpoints" (Card 1988, 130). Even more specific to the voice appropriation controversy are the comments of ethicists Joan Poliner Shapiro and Carroll Smith-Rosenberg (1989) who argue that the real value of the "other voice" advocated by Gilligan, Noddings and others is that it represents the "voice of the marginal and the disempowered; the voice of those who abjure the values of competition and success and hold those of cooperation and caring" (Poliner Shapiro and Smith-Rosenberg 1989, 199). The larger problem, according to these authors, is that injustice, care and concern for others rarely receive the attention in North American systems of ethical reasoning and discourse that justice, rights and laws receive.

An ethic of care then, is not intended to be a problem solving mechanism. Rather, it is added at this point as another tier offering us a more enlightened perspective from which we can address voice appropriation. "Care" represents a possible attitude of approach, not a solution to the appropriation controversy. Mindful of the argument types based on

accuracy, ownership, solidarity, opportunity and access/rights voiced mostly by minorities, it is highly likely that most oppressed groups would agree that an ethic of care is a step in the right direction--the direction of someday resolving the voice appropriation controversy or at least accepting the importance and validity of its own spokespersons' claims and counter-claims. More often than not, it is such things as consultation, acceptance and respect that minority writers (Fung, Dawes, Blackley) are really seeking--more so than some form of abstract proscription (let alone censorship) against voice appropriation. For example, Stuart Blackley, urges that:

artists of colour must set the parameters of the debate over the appropriation of their culture, as women must for the issues of abortion and rape. This stops no one from freely speaking, from having an opinion...But authority must be acknowledged to those whose culture or bodies are the very battle grounds on which the debates are played out (Blackley 1993, 52).

Kwame Dawes is another who believes that the recent activities of Canadian funding agencies, publishers and administrative bodies (Royal Commission on Aboriginal Peoples, Theytus Books and Pemmican Press, The Womens' Press and the Toronto Arts Council) represent a positive shift in philosophy, one that

ensures minority artists and their "voices" are treated with "intelligence, sensitivity and respect" (Dawes 1993, 8). Such comments are evidence that an ethic of care can hold a prominent and important place in the voice appropriation controversy since they envision the same kind of sensitivity, empathy and concern for others that an ethic of care urges, and that minority artists are calling on the majority writers to develop and exercise.

Moreover, an ethic of care seems to surface explicitly in at least two specific areas of the voice appropriation controversy. First, it is no coincidence that many minority writers' comments and arguments within the voice appropriation debate (which emphasize the importance of sensitivity, caring and respect for the stories and experiences of others) resemble the pleas women have made throughout the women's liberation movement. The language and arguments of feminist ethicists working from an ethic of care perspective embody the same types of claims and counter-claims articulated by the minority artists in the voice appropriation debate. Feminist ethicists, working to change what they perceive as a white, male-dominated system of moral reasoning, share the same aspirations and have experienced similar inequalities as Aboriginal artists and artists of Colour. Both groups of people have faced or continue to face oppressive and

discriminatory societal barriers. Furthermore, not only do both groups advocate what feminist ethicists call the "care ethic", but both groups want to tell their own stories, define their own reality, and speak in their own voices. Just as many minority artists ask for the dominant culture's respect and appreciation of their needs and experiences, "care" ethicists ask those who support the masculine way of moral reasoning to incorporate an ethic of care into their decision-making process.

Second, both groups acknowledge affectivity. Ethicist, Virginia Held, for example, sees no need or use for separating reason and emotions when making moral judgments or decisions. Instead, Held argues that "[c]aring, empathy, feeling for others, being sensitive to each other's feelings--all may be better guides to what morality requires in actual contexts than abstract rules of reason and rational calculation" (Held 1993, 52). Held even envisions a society ruled by feminist ethics: a vision which many of the minority artists mentioned in the voice appropriation might also subscribe to, at least in theory. Held believes that there are different levels of caring between one's self and one's family, and between one's self and one's society. In Held's imagined "feminist society", even distant social relationships "will not be characterized by indifference to the well-being of others, or an

absence of trust, as they are in many non-feminist conceptions" (Held 1993, 223). Reasoning and making decisions based on an ethic of care would likely be more contextual and narrative--taking the time to assess how one's decisions will affect others (Held 1993, 169).

This type of ethical reasoning and decision making, I submit, is precisely what is needed to respond more adequately to the serious claims and counter-claims of voice appropriation. Compared to access theory and at least one modern version of justice theory, it harmonizes more adequately with the commentaries and suggestions offered by minority writers themselves (e.g. Fung, Dawes and Blackley).

IV. CONCLUSION

This chapter proposes that an ethic of care deserves special study in the voice appropriation controversy. Not only does it offer a fresh perspective from which the claims of minority and majority writers can be evaluated, but it also leads us to consider the importance of being connected to others--of perceiving ourselves not as individuals protected by abstract rules of justice and liberty, but as diverse human beings whose cultural decisions and narrative

actions have profound effects on others--and who, like it or not, have to learn to live with one another.

The three-fold approach discussed in this chapter progressively leads us through stages of improved understanding of the complexity of voice appropriation and its ethical components. The chapter began with a discussion of access and the more generalized right to communicate. At that point, where access fades into dealing mostly with the logistics involved in the distribution of social and cultural goods within society, we are still left with the ethical question of fair distribution of such goods and opportunities. Here, Rawls's theory of justice, and in particular his "veil of ignorance" strategy offers decision-makers a unique perspective from which to consider the restitution of what some commentators believe to be "stolen" social and cultural goods and opportunities. Finally, and in light of the limitations of Rawls's theory which is based mostly on self-interest in terms of decision-making, an ethic of care is imported into the voice appropriation discussion bringing us beyond the "pure justice" perspective concerned with allotment and portions. Since voice appropriation essentially deals with a living cultural community as opposed to competing individual rights, an ethic of care offers a expanded view from which one can adequately consider the needs and concerns of 'voiceless' cultures.

While the moral approach offered in this chapter remains at times, just as abstract and rooted in language as the voice appropriation debate itself, the three-tiered approach is intended to amplify the discussion and extend our vision of the appropriation phenomenon. This moral approach is not meant to supply concrete answers or resolve the debate, but instead introduce the reader to another kind of appeal or perspective from which the voice appropriation controversy and its complexity can be understood.

CHAPTER 6

FINAL REMARKS

I. CONCLUSION

Canada is a country already well acquainted with the struggle for cultural identity and self-determination. In the face of ever increasing American media domination, Canada continues to struggle (e.g., through Canadian content quotas and the efforts of the NFB) to maintain and express its own national and regional cultural identities. Ironically, then, the domestic strife within the community of Canadian writers and artists over voice appropriation parallels Canada's larger international struggle to resist cultural and economic domination by the United States. These general concerns over the act and consequences of appropriation (misrepresentation, stereotypes, loss of accuracy and revenues) are not isolated or confined to one discipline. Anthropologists are now questioning the methods traditionally used in their field to gather and assemble the material world of the 'Other'. Some anthropologists have asked members of their field to consider: "what criteria validate authentic cultures or artistic products?" and in turn, "what moral and

political criteria justify good, responsible, and systematic collecting practices?" (Clifford 1988, 221). Perplexing questions such as voice appropriation do not lend themselves to simple or immediate answers, but instead require careful examination of the historical, rhetorical and ethical issues involved.

The label of 'appropriation' is by no means an arbitrarily chosen word used by some minorities to describe their frustration with the actions of certain dominant artists. In the voice appropriation debate, the word 'appropriation' commonly connotes a negative meaning: to take without permission. Otherwise commentators could just as well have used words such as 'borrowing' and 'sharing' to describe this social phenomenon. Furthermore, the term 'appropriation', as it has evolved over the past decade in art and literary circles and as it is used in this thesis, is most often applied to works produced by persons of a dominant group which in turn uses, imitates or incorporates themes and images which derive from a minority or subordinate culture. Appropriation, in this context, presupposes a social environment wherein artists' voices from both group levels (minority and majority) are not equally heard. Voice appropriation, then, culminates as a controversial socio-political phenomenon wherein the dominant voices often tell the stories of or about the subordinate culture (e.g.

African-Americans, Aboriginal peoples, or women). In fact, the voice appropriation controversy has become so heated in the Canadian context at least, that some artists and academics equate appropriation with "stealing" "trespassing" and "exploitation" (Dawes 1993; Lutz 1993; Keeshig-Tobias 1990). The voice appropriation claim becomes even more controversial when it is inflated to such extremes wherein the only acceptable narratives left to write about or otherwise depict would be autobiographies. When voice appropriation is framed in this extreme manner, other artists and commentators make references in their counter-arguments to the book burning in the 1930s by the Nazis and to imagery of the "thought police" (Young 1992, 6[B]). Emotionally charged terms such as 'racism' and 'censorship' have also been evoked on both sides of the voice appropriation debate.

While the mainstream media in Canada have been quick to transform the voice appropriation debate into a conflict about speech freedoms and censorship, this thesis demonstrates that the conflict is much more complex. Furthermore, framing the debate in such a simplistic manner is both deceptive and confusing because it eclipses important factors such as racism, misrepresentation, stereotyping, funding, access, right to communicate, opportunity, bureaucratic responses, copyright violation, as well as the whole issue of

what it means 'to own' one's cultural heritage and experiences. The notion of property being extended to include experience and artistic/intellectual work is highly problematic, and yet this is an enduring theme in the voice appropriation controversy.

As a first step in understanding voice appropriation, this thesis began by broadly situating the issue in an historical context by exploring some examples of what is claimed to be gender and racial appropriation within the genres of art and literature. The next chapter situated a more recent version of the voice appropriation debate in the Canadian context and in such a way as to disclose several kinds of organizational responses within private and government sectors.

This historical situating of the voice appropriation controversy discloses that there are a number of recurrent themes, often expressed in the form of claims and counter-claims. On the one hand, those who argue that the practice of "appropriating" the voice of another is unacceptable claim that: i) voice appropriation, by placing a writer or an artist within another culture, with such intimacy and compelling verisimilitude, commits an act of trespassing or usurpation; ii) "appropriation" traffics in facile images or stereotypes which greatly falsify conditions within the non-dominant cultures; iii) appropriation

trivializes and minimizes serious inequities; iv) dominant-culture artists are incapable of truthfully representing minority cultural realities; v) profits and employment opportunities are lost by minority artists when majority artists depict cultures not their own.

Several recurrent argument types are offered in response: vi) voice appropriation, by crossing cultural boundaries, is a defensible tool of instruction; vii) there is more than one way of 'knowing'--one does not have to 'be' from a minority in order to understand; viii) imagining the experiences of others is a key component in artistic endeavors and in human communication; ix) the true art of storytelling or re-creating through visual images lies in artists' or writers' ability to step outside their own skin and imagine life as another; x) while an insider may, by virtue of direct experience, portray key events of his/her culture more authentically, there is room for more than one account in the consumer market. Authenticity does not guarantee accuracy; and sometimes outsiders can see things more clearly than those on the inside.

Throughout this exchange, the broader ideas of access, the right to communicate, and a minority culture's right to self-expression also figure as recurrent motifs. The confusion that colours much

of the voice appropriation debate is exemplified in the seemingly contradictory claims made within the Writers' Union of Canada. While the Writers' Union agreed with the Canada Council by affirming the freedom of imagination and the freedom of expression of all writers at its 1992 Annual General Meeting, it also was sharply critical of what it calls "cultural misappropriation". Thus, while the first part of its statement seems to permit or condone appropriation, the second part takes exception. What remains unclear despite the Union's attempt to define 'cultural misappropriation' is how this term differs from 'appropriation'. Does the Union mean to say that there are 'good' and 'bad' ways to 'appropriate' from another? The Union's unclear (possibly contradictory) policy statement appears to acknowledge the concern that cultural misappropriation contributes to the exploitation and misrepresentation of minority cultures. Still, the Union offers no direction in terms of judging what constitutes 'misappropriation' as opposed to say 'defensible appropriation'; nor does it offer suggestions for dealing with such potentially exploitive works.

Indeed, it seems that voice appropriation unavoidably involves several kinds of contradiction as already noted by Canadian producer Richard Fung. Fung gets to the heart of the voice appropriation

paradox when he alleges that there exists a "contradictory reality of using the voice, sound, image, dance, or stories of another" since this reality may represent "sharing or exploitation, mutual learning or silencing, collaboration or unfair gain, and more often than not, both aspects simultaneously" (Fung 1993, 21). Voice appropriation, then, raises some profound questions about boundaries, authority and appropriateness. There are also several pressing philosophical dimensions to voice appropriation that deserve consideration. These philosophical dimensions include the difficulty (or impossibility) of clearly defining what constitutes the "Other" and where one draws the lines of "otherness". There is also the question of 'who is in the position to define and speak for others (whether this 'other' is a member of one's own culture or not)?' And, what are we to do about in-group differences? How do we decide which characteristics (age, race, gender, etc.) best define who we are? How do we reconcile the testimony of those who say that special treatment for minorities is needed with those (e.g. Bissoondath 1994) who argue otherwise? Lastly, one must question whether it is wise, in terms of social development, for Canadians to continue down a path that emphasizes our 'differences' and ignores our 'sameness'.

Because of its complexity, then, voice

appropriation must not be perceived or approached simplistically in terms of censorship or the right to unfettered communication. Rather it needs to be investigated in a much more comprehensive and historical context which does justice both to its organizational and procedural features as well as to its rhetorical and philosophical complexity.

By applying a three-fold methodological approach that merges rhetorical theory, argument analysis and theoretically grounded ethical evaluation to the voice appropriation debate, and by identifying more than a dozen additional argument types beyond those in Claudia Mills's (1994) primary classification of anti-appropriation arguments, this thesis supplies a scope and combined perspective not yet provided within the existing literature. While many of the individual arguments voiced by aggrieved minority spokespersons might be limited, even weakened by counter-claims, the collection of arguments adduced on the side of minorities adds up to a strong case. While freedom of expression and artistic creativity might appear to neutralize much of the minorities' case, the fact remains-as earlier chapters demonstrate--that there has been an accumulation of historical imbalance and a combination of epistemic and ethical considerations which cannot be ignored, and which, I believe, give the minority complaints a clear moral edge. In short,

this thesis's examination of voice appropriation within a sequence of historical, rhetorical and ethical perspectives means that the study of this Canadian cultural phenomenon has now attained a degree of comprehensiveness and adequacy not yet evident in the existing literature.

Still, a practical question remains: Can anything be done both to assuage minority grievances, and to educe harmony from within this conflict? Chapter five, I believe, offers a series of theoretically grounded moral reflections which invite us to respond helpfully and caringly to that part of the appropriation phenomenon which minorities experience as dispossession. Here, organizational responses are more likely to succeed than individual intentions. Regulations and proscriptions against voice appropriation, however, are both impractical, if not impossible, to enforce and an obvious violation of speech freedoms. Heightened ethical awareness and moral resolutions may help to convince some individuals within the majority community to move with increased sensitivity and circumspection should they choose to work on minority themes and narratives. It would be naive, however, to expect wholesale compliance from artists and commercial interests. Probably the most effective corrective, then, is for arts councils and funding bodies to acknowledge cultural inequities, and to frame their

decisions accordingly. Recent Canadian history indicates that this is the most likely avenue for improvement. The Toronto Arts Council's recent efforts to redress the discrepancy between the Council's own representatives and the cultural and ethnic diversity within the Toronto community are a palpable step towards resolving some of the tensions at the surface of the appropriation debate. Similarly, the ethical guidelines produced by the Royal Commission on Aboriginal Peoples (1993) encouraging artists to consult and cooperate with the cultural and ethnic communities represented in their works signals a conscious effort within formal policy-shaping structures to address appropriation issues. Quebec too, has implemented directives with respect to protection and preservation of Aboriginal cultures. These kinds of organizational responses seem to be much more practical and effective than the isolated responses of individuals. Were the press to report at least some of these developments, the resulting public discussions would be better informed and less simplistic.

Finally, the voice appropriation conflict is a real irritant in our multicultural nation, and while it has not attracted a great deal of press attention in 1995, it is not yet something that has run its course. It is an instructive flashpoint because it also serves to underscore the issues of power relations,

access and opportunity which characterize Canada's cultural mosaic. It illustrates as well the kinds of adjustments that have to be made in the name of communitarian growth. As such, the voice appropriation issue needs to be understood as part of our domestic conversation. That understanding, I have tried to show, is poorly served when the appropriation debate is reduced to a contest between speech freedom and censorship. It is much better served when appropriation discourse is viewed more adequately in its historical, rhetorical and ethical complexity.

II. FURTHER RESEARCH

Voice appropriation is a complex and politically-charged topic that can be approached and studied in many different ways. While this thesis represents an exercise in analyzing the debate or controversy surrounding a certain kind of cultural exchange between dominant and minority cultures, it is not intended to be an exhaustive or final study of voice appropriation. In fact, in writing this thesis it became apparent that there are numerous levels of conversation pertaining to voice appropriation worth investigating. Other important areas of study include analyses of some of the real situations minority groups

are experiencing in the publishing industry. Such a study would include publishing statistics, surveys of gallery collections and information about the demographic characteristics of grant recipients. Other possible areas of study include more specific applications of voice appropriation. For example, a study of voice appropriation's place within specific genres of art (film, stage performance). Voice appropriation could also be studied in terms of policy and educational considerations, including an investigation what policies are in place to assist and educate minority artists; their effectiveness; and what further considerations are needed in the areas of educational content, training and the Canadian broadcasting and publishing industries.

ENDNOTES

¹ In this chapter and throughout this thesis, less contemporary terms such as "Native", "Black", "Eskimo", and/or "Negro" will be employed only when referring directly to a commentary/ article written by another author, or when directly quoting from an author who used this type of language. In those places where I am expressing my own thoughts and words, more contemporary terms such as "Aboriginal", "First Nations", "Metis", "Inuit", "People of Colour", "African American", "African Canadian", "Black American/ Canadian", and/or "African North American" will be used.

² Throughout this thesis, the terms "cultural appropriation" and "voice appropriation" will be used synonymously unless otherwise indicated in the text. In the context of this thesis, both cultural appropriation and voice appropriation will be interpreted to mean "to take possession of or make use of exclusively for oneself, often without permission" (The American Heritage Dictionary 1971, 64). Specifically, these terms will be used in reference to various forms of artistic works and/or cultural texts (novels, paintings, films, short stories, music, lyrics, and narratives). Often times, the intimacy of first-person narration characterizes such 'appropriated' cultural texts.

³ For the purposes of this thesis, the mainstream press is defined as the popular Canadian daily newspapers. These include first and foremost, the Globe and Mail. Other dailies include the Montreal Gazette, Winnipeg Free Press, Toronto Star, and any other Canadian dailies.

⁴ The issue investigated in this thesis is contiguous to, but not the same as that featured in the David Brown (1990) thesis. In his thesis, Brown compared the values depicted in Canadian films about Aboriginal culture directed by Aboriginals to those directed by non-Aboriginals and found that native-directed films provided more support for "humanistic" values than for "material" values or unclassified values (Brown 1990, vi).

⁵ In this thesis, minority or subordinate groups are defined as those groups in society which have suffered or continue to suffer from widespread discrimination (as a group). Claudia Mills (1994) refers to these groups as "victim groups".

⁶ The "cultural appropriation claim" is defined in this thesis as the claim that appropriating the voice/ culture of another is both morally wrong and an unfair and harmful practice. This claim against the practice of voice/ cultural appropriation in the arts will be discussed within this thesis in terms of its more and less extreme variations.

⁷ Eric Lott (1993) entitles his book "Love and Theft" because of the white minstrel performers' attempts to repress through ridicule and exploitation of Black culture, the real fascination many whites had with the Black male physique in particular, and Black culture, in general. Lott argues that it was "cross-racial desire" experienced by the whites coupled with their fascination and self-protective ridicule with respect to Black people and their cultural practices, and that made Blackface minstrelsy "less a sign of absolute white power and control than of panic, anxiety, terror, and pleasure" (Lott 1993, 6). In sum, Lott contends that the dominant, white culture's exploitation and appropriation of Black cultural practices represents both white society's fear of and fascination with "Otherness" in general, and "Blackness" in particular.

⁸ While there is also a sad history of insensitive depictions of Aboriginal cultures in Canada, especially in the film and documentary genres, this should not be confused with the voice appropriation phenomenon which usually involves a person from the dominant culture (often a white male) assuming or wearing the identity of another.

⁹ A shouting match with writers of Colour outside a P.E.N. (Poets, playwrights, essayists, editors, and novelists) meeting in 1989 is considered by some commentators to be one of a series of conflicts Callwood had with other writers over the voice appropriation issue; conflicts which led to her ultimate resignation from the Writers' Union in the winter of 1993/94.

¹⁰ Another example of person's (exploiting) profiting from cultural traditions not their own includes the criticism surrounding a non-native Miss America contestant who performed a "buckskin-clad dance" in a preliminary competition. Some American Indians publicly condemned her behavior calling it an "insult", especially since this contestant is a "blue-eyed blond from Brookings, South Dakota" (Chicago Times 1994, 31).

11 Culture can be defined broadly as the "varied array of values, beliefs, customs, conventions, habits and practices characteristic of a particular society or historical period" (Thompson 1990, 123).

12 According to the American Heritage Dictionary, sharing means to "participate in, use, or experience in common" (Morris 1971, 1191). Trafficking, on the other hand, means the "commercial exchange of goods" (Morris 1971, 1361).

BIBLIOGRAPHY

- Alcoff, L. 1991. The problem of speaking for others. Cultural Critique no. 20: 5-32.
- Alexis, A. 1995. Taking a swipe at Canada. Globe and Mail, 7 January, 19[C].
- Alternative Media: Linking global and local. UNESCO: Reports and Papers on Mass Communication, 107.
- Atwood, M. 1990. If you can't say something nice, don't say anything at all. In Language In Her Eye, ed. Libby Scheier and Sarah Sheard, 15-25. Toronto: Coach House Press.
- Berrigan, F. 1977. Access: Some Western Models of Community Media. UNESCO.
- Bissoondath, N. 1994. Selling Illusions. Toronto: Penguin Books.
- Bissoondath, N. 1992. Who's talking? English teachers tackle voice appropriation. Interview by Sandy Greer. Our Times, December: 21-23.
- Black, A. and Morris, R. 1992. More back talk. Fuse Magazine 15, no. 6: 18-21.
- Blackley, S. 1993. Taking dictation. Fuse Magazine 16, no. 5-6: 51-52.
- Bormann, E. 1985. Symbolic Convergence Theory: A Communication Formulation. Journal of Communication (Autumn): 128-138.
- Brand, D. 1993. Who can speak for whom? Brick: A Literary Journal 13, no. 46: 13-20.
- Brock, B. L. and Scott, R. L. 1980. Methods of Rhetorical Criticism: A Twentieth Century Perspective. 2nd ed. Michigan: Wayne State University Press.
- Brown, D. 1990. Values Projected in Native-Oriented National Film Board Productions of Canada. Windsor: University of Windsor.
- Browning, J. 1991. Self determination and cultural appropriation. Fuse Magazine 15, no. 4: 31-35.
- Callwood, J. 1994. In Callwood resigns from Writer's Union. Globe and Mail, 16 February, 1[C].

- Cameron, A. 1990. The operative principle is trust. In Language In Her Eye, ed. Libby Scheier and Sarah Sheard, 63-71. Toronto: Coach House Press.
- Card, C. 1988. Women's voices and ethical ideals: Must we mean what we say? Ethics 99: 125-135.
- Cassidy, M. 1992. Overview of the first round. Royal Commission of Aboriginal Peoples, 1-17.
- Cernetig, M. 1994. The race conference that fizzled. Globe and Mail, 4 July, 1[C].
- Chapman, V. 1993. Towards cultural equity. Fuse Magazine 17, (Fall): 5.
- Contestant's 'Native' dance angers Indians. 1994. The Chicago Times, 11 September, 31.
- Churchill, W. 1991/92. Colonialism, genocide and the expropriation of indigenous spiritual tradition in contemporary America. Border Lines, 23: 39-41.
- Clarke, J. 1968. William Styron: Ten Black Writers Respond. Boston: Beacon Press.
- Clifford, J. 1988. The Predicament of Culture. Cambridge: Massachusetts: Harvard University Press.
- Conlogue, R. 1992. Artists must resist political pieties of left and right. Globe and Mail, 6 June, 7[C].
- Cultural appropriation: Middle ground is elusive. Montreal Gazette, 18 April, 8[E].
- Cummings, P. 1992. Voice appropriation. Globe and Mail, 10 April, 18[A].
- Dawes, K. 1993. Re-appropriating cultural appropriation. Fuse Magazine 16, no. 5-6: 7-15.
- Dickens, C. 1977 (reprint). Bleak House. George Ford and Sylvere Monod, eds. New York: Norton (page references are to reprint edition).
- Dickens, C. 1966. The Personal History of David Copperfield. Baltimore: Penguin.
- Drainie, B. 1994. Controversial writers' meeting is both meet and right. The Globe and Mail, April 16, 1[E].

- Dunning, J. 1976. Tune In Yesterday: The Ultimate Encyclopedia of Old Time Radio 1925-76. New Jersey: Prentice-Hall.
- Enright, R. 1992. The appropriateness of appropriation. Border Crossings 11, no. 2: 5.
- Fisher, D. 1982. The right to communicate: A status report. UNESCO: Reports and Papers on Mass Communication no. 94.
- Fisher, W. R. 1987. Human Communication as Narration: Toward a Philosophy of Reason, Value, and Action. South Carolina: University of South Carolina Press.
- Foss, S., Foss, K., and Trapp, R. 1985. Contemporary Perspectives on Rhetoric. Illinois: Waveland Press.
- Freeman, V. 1992. The body of our People: Interview with Jeanette Armstrong. Paragraph 14, no. 3: 9-12.
- Freeman, V. 1992. Face to face: Interview with Susan Crean. Matrix 38: 28-30.
- Fulford, R. 1994. George Orwell, call your office. The Globe and Mail, 30 March, 1[C].
- Fulford, R. 1994. Defending the right to be offensive. The Globe and Mail, 2 February, 1[C].
- Fulford, R. 1993. The trouble with Emily. Canadian Art. (Winter): 33-39.
- Fulford, R. 1994. Freedom thrives on disturbing thoughts. Canadian Speeches: Issues of the Day. July: 24-27.
- Fung, R. 1993. Working through cultural appropriation. Fuse Magazine 16, no. 5-6: 16-24.
- Garrod, A. 1986. Speaking For Myself: Canadian Writers in Interview. Newfoundland: Breakwater Books.
- Gerbner, G. 1985. Homo Narrans: Story-telling in mass culture and everyday life. Journal of Communication. (Autumn): 73.
- Giagrande, C. 1990. Allowing the mind To wander. The Globe and Mail, 19 September, 18[A].
- Gill, A. 1994. Rhetoric and Human Understanding. Illinois: Waveland Press.

- Gilligan, C. 1982. In A Different Voice. Massachusetts: Harvard University Press.
- Goldberg, K. 1990. The Barefoot Channel. Vancouver: New Star Books.
- Greer, S. 1992. Who's talking: English teachers tackle voice appropriation. Our Times. December: 21-23.
- Groen, R. 1992. Spike Lee: marketing and myth making. Globe and Mail, 14 November, 2[C].
- Hassan, M. 1993. Words and swords: An anagram of appropriation. Fuse Magazine 16, no. 5-6: 28-30.
- Hauser, G. 1986. Introduction to Rhetorical Theory. Philadelphia: Harper & Row Publishers Inc.
- Held, V. 1993. Feminist Morality: Transforming Culture, Society and Politics. Chicago: University of Chicago Press.
- Hill, R. 1992. One part per million: White appropriation and Native voices. Fuse Magazine 15, no. 3: 12-22.
- Hook, S. 1989. Civilization and its malcontents. National Review 41 (October): 30-33.
- Hoy, H. 1993. When you admit you're a thief, then you can be honourable. Canadian Literature. (Spring): 24-39.
- Hume, C. 1994. Negotiating a collective cultural space: Interview by Sheyfali Saujani. CBC: Ideas On Stereo, 6 March.
- Hurka, T. 1989. Should whites write about minorities. Globe and Mail, 19 December, 8[A].
- Hurst, L. 1992. Can not lit! Toronto Star, 11 April, 1[H].
- Hutchinson, A. 1992. Giving smaller voices a chance to be heard. Globe and Mail, 14 April, 16[A].
- Johnstone, C. 1980. An Aristotelian trilogy: Ethics, rhetoric, and the search for moral truth. Philosophy and Rhetoric 13, no. 1 (Winter): 1-24.
- Katzner, L. 1980. The original position and the veil of ignorance. In John Rawls' Theory of Social Justice: An Introduction, ed. H. Gene Blocker and Elizabeth H. Smith, 42-70. Athens, Ohio: Ohio University Press.

- Keeshig-Tobias, L. 1990. Stop stealing Native stories. Globe and Mail, 26 January, 7[A].
- Language and Equity Guide: A Guide To Inclusive Language. 1993. Windsor: Office of Employment and Educational Equity.
- Lau, E. 1994. Why I didn't attend the Writing Thru 'Race' conference. Globe and Mail, 9 July, 3[D].
- Lorimer, R. and Duxbury, N. 1992. Book publishing in Canada: The fight for survival. In Seeing Ourselves: Media Power and Policy in Canada, ed. Helen Holmes and David Taras, 105-118. Toronto: Harcourt Brace Jovanovich Canada Inc.
- Lott, E. 1993. Love and Theft. New York: Oxford University Press.
- Lougheed, T. 1994. How far is too far? University Affairs: Association of Universities and Colleges of Canada. April: 6-7.
- Lutz, H. 1993. Robbed graves, whiteshamanism, and stolen stories: (Re-?) appropriation of Native cultures. In Kulturen in Kontakt, ed. Sigrid Markmann, 245-258. Hamburg: Veneag Dr. Kovac.
- Lutz, H. 1990. Cultural appropriation as a process of displacing peoples and history. The Canadian Journal of Native Studies 5: no. 2: 167-182.
- Maart, R. 1993. Cultural appropriation. Fuse Magazine 16, no. 5-6: 45-50.
- Maclear, K. 1993. Diss-Orient-ation. Fuse Magazine 16, no. 5-6: 25-27.
- Makin, K. 1994. How Canadian's roots became ethnic walls. Globe and Mail, 27 June, 1[A], 4[A].
- Manning, R. 1992. Speaking From the Heart: A Feminine Perspective on Ethics. Maryland: Rowman and Littlefield Publishers Inc.
- Mays, J. B. 1994. Squabble over Carr the woman muddies critique of her paintings. The Globe and Mail, 9 April, 15[C].
- McGee, M. and Nelson, J. 1985. Narrative reason in public argument. Journal of Communication. (Autumn): 139-53.

- Miki, R. 1994. Why we're holding the Vancouver conference. Globe and Mail, 7 April, 23[A].
- Mills, C. 1994. Multiculturalism and cultural authenticity. Philosophy and Public Policy 14, no. 1-2: 1-5.
- Morris, W., ed. 1971. The American Heritage Dictionary of the English Language. New York: American Heritage Publishing Co. Inc.
- Nash, R. and Ross, S. 1985. The Motion Picture Guide 1927-83. Chicago: Cinebooks.
- Noddings, N. 1984. Caring: A Feminine Approach to Ethics and Moral Education. Los Angeles: University of California Press.
- Nunner-Winkler, G. 1993. Two moralities? A critical discussion of an ethic of care and responsibility versus an ethic of rights and justice. In An Ethic of Care: Feminist and Interdisciplinary Perspectives, ed. Mary Jeanne Larrabee, 143-56. New York: Routledge.
- Paris, E. 1992. A letter to the thought police. Globe and Mail, 31 March, 16[A].
- Perelman, C. H. 1982. The Realm of Rhetoric. Indiana: University of Notre Dame Press.
- Philip, M. N. 1990. The disappearing debate: Racism and censorship. In Language In Her Eye, ed. Libby Scheier and Sarah Sheard, 209-219. Toronto: Coach House Press.
- Phillips, C. 1991. In Appropriation of voice 'an absurdity' author says. Interview by Val Ross. Globe and Mail, 21 October, 1[C].
- Province of Quebec. 1990. Departmental Policy on Aboriginal Cultural Development. Public Policy and Aboriginal Peoples 1965-92, 3, 190-193.
- Puka, B. 1993. The liberation of caring: A different voice for Gilligan's different voice. In An Ethic of Care: Feminist and Interdisciplinary Perspectives, ed. Mary Jeanne Larrabee, 215-39. New York: Routledge.
- Rawls, J. 1971. A Theory of Justice. Massachusetts: Harvard University Press.
- Renzetti, E. White on black: The rap on rap. The Globe and Mail, 11 March, 1[C].

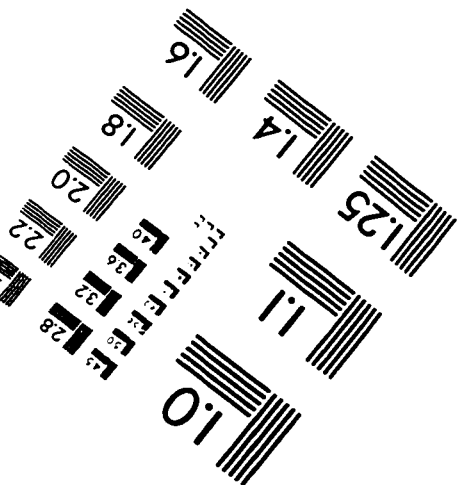
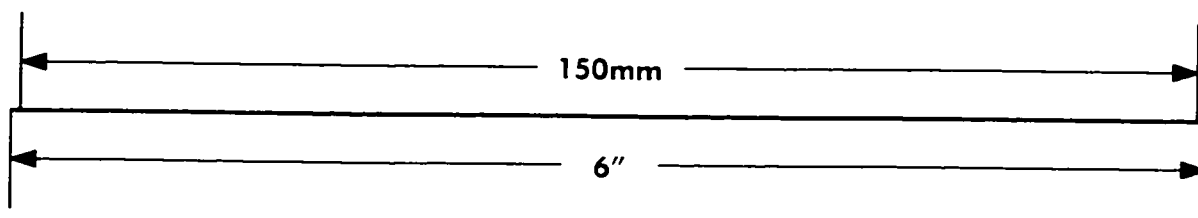
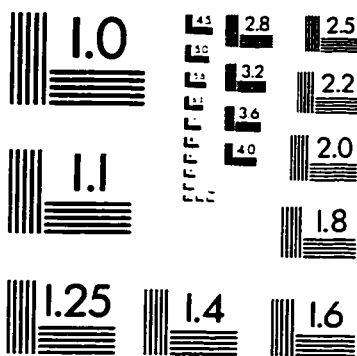
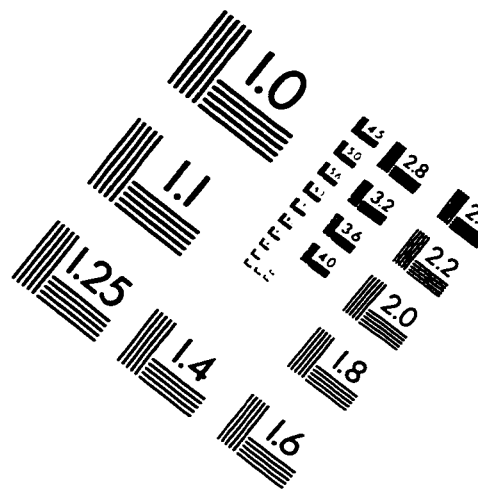
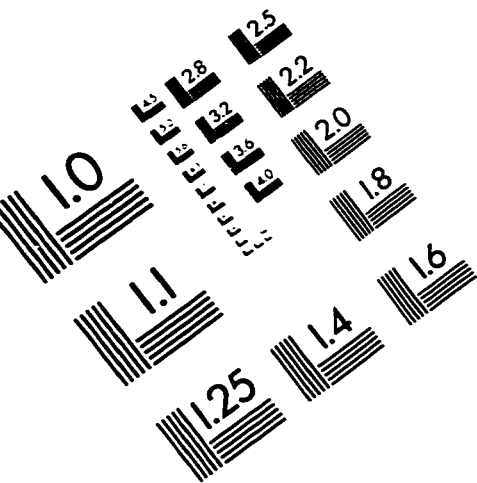
- Ross, V. 1994. Shouting match mars forum on writers' union conference. The Globe and Mail, 14 May, 15[C].
- Ross, V. 1994. Callwood resigns from the Writers Union. The Globe and Mail, 16 February, 1[C].
- Rule, J. 1990. Deception in search of the truth. In Language In Her Eye, ed. Libby Scheier and Sarah Sheard, 225-228. Toronto: Coach House Press.
- Rybacki, K. and D. 1991. Communication Criticism: Approaches and Genres. Belmont, California: Wadsworth Publishing Co.
- Saujani, Sheyfali. 1994. Negotiating a collective cultural space. CBC: Ideas On Stereo. 6 March.
- Schiller, H. 1976. Communication and Cultural Domination. White Plains, New York: M.E. Sharpe.
- Shields, C. 1990. The same ticking clock. In Language In Her Eye, ed. Libby Scheier and Sarah Sheard, 256-259. Toronto: Coach House Press.
- Styron, W. 1967. The Confessions of Nat Turner. New York: Random House.
- Taylor, A. R. 1981. Male Novelists and Their Female Voices. New York: The Whitston Publishing Co.
- Taylor, K. 1994. A Juno loss is in their prayers. Globe and Mail, 19 March, 6[C].
- Thomas, J. 1994. European arrogance in the land of the Dene. Globe and Mail, 28 May, 22[C].
- Thomas, J. 1992. Whose freedom, whose voices? Winnipeg Free Press, 11 April, 36[C].
- Tronto, J. 1989. Women and Caring: What can feminists learn about morality from caring. In Gender-Body-Knowledge, ed. Alison Jagger and Susan Bordo, 172-87. London: Rutgers University Press.
- Valaskakis, G. G. 1993. Parallel voices: Indians and others narratives of cultural struggle. Canadian Journal of Communication 18, no. 3: 283-295.
- Valaskakis, G. G. 1993. Dance me inside: Pow Wow and being 'Indian'. Fuse Magazine 16, no. 5-6: 39-44.
- Valpy, M. 1994. A nasty serving of cultural apartheid. Globe and Mail, 8 April, 2[A].

- Van Eemeren, F. H., Grootendorst, R. and Kruiger, T. 1984. The Study of Argumentation. New York: Irvington Publishers Inc.
- Walkem, A. 1993. Stories and voices. Fuse Magazine 16, no. 5-6: 31-38.
- Walker, G. and Sillars, M. 1990. Where is argument? Perelman's theory of values. In Perspectives on Argumentation: Essays in Honor of Wayne Brockriede, ed. Robert Trapp and Janice Schuetz, 134-50. Illinois: Waveland Press Inc.
- Weaver, R. 1985. In Contemporary Perspectives on Rhetoric, ed. Sonja K. Foss, Karen A. Foss and Robert Trapp. Illinois: Waveland Press.
- Weaver, R. 1970. Language is Sermonic. Edited by Richard L. Johannesen, Rennard Strickland and Ralph T. Eubanks. Baton Rouge: Louisiana State University Press.
- Weaver, R. 1953. Introduction to Rhetorical Theory. Chicago: Henry Regnery.
- Weaver, R. 1948. Ideas Have Consequences. Chicago: University of Chicago.
- Webster's Third New International Dictionary. 1986. Springfield, Massachusetts: Merriam-Webster Inc. Publishers.
- Wenzel, J. W. 1993. Rhetoric and Argumentation: An Introduction. Informal Logic 15, no. 1: 1-5.
- Winnipeg Free Press, 1992. 13 June, 6[A].
- Woolf, V. 1979. Women and Writing. Great Britain: ed. Michele Barrett, 1925; reprint, Great Britain: The Women's Press (page references are to reprint edition).
- The Women's Press. 1988-90. Guidelines for Submissions. Toronto.
- Writer's Union of Canada. 1992. Annual General Meeting Report. Ottawa: University of Carleton, June 5-7.
- Young, K. 1992. Could I borrow your culture please? Calgary Herald, 2 May, 6[B].
- Young-Ing, G. 1994. The estrangement and marginalization of Aboriginal writers in Canada. Paragraph 15, no. 3-4: 23-27.

VITA AUCTORIS

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